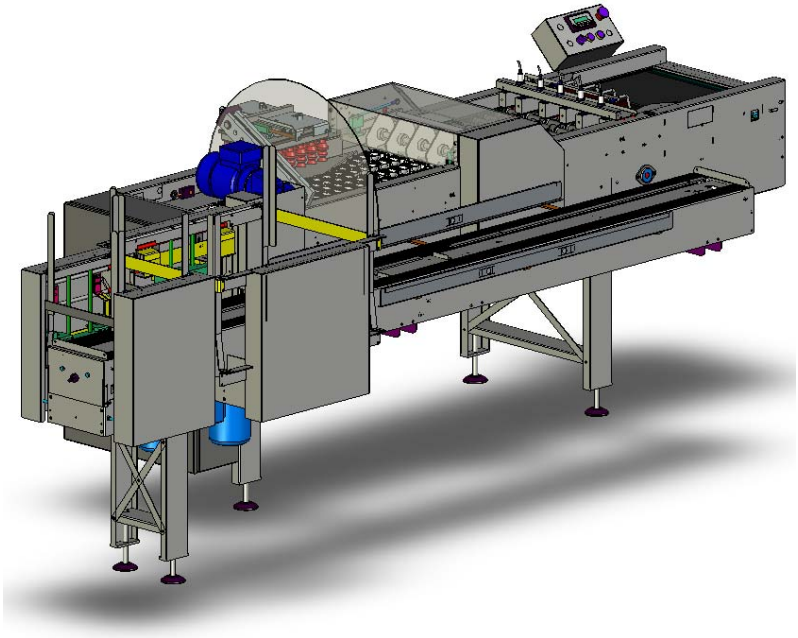

SERVICE MANUAL PSPC5

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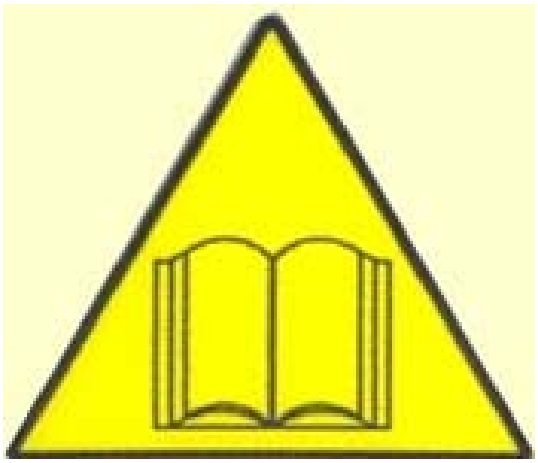
TABLE OF CONTENTS

INDEX

INTRODUCTION



CAUTION:

This manual must be read by each person, before that person adjusts the machine.

ATTENCION:

Cualquier persona que ajusta esta máquina, debe leer este manual de manejo antes de ajustar.

ATTENTION:

Chacun qui régle cette machine doit lire le manuel en avant.

VORSICHT:

Jeder, der diese Maschine einstellen soll, muß vorher diese Hinweise lesen.

ATTENTIE:

Een ieder, die deze machine afstelt dient vooraf deze handleiding te lezen.

LIABILITY

Prinzen BV cannot be held responsible for any costs, damage or personal injury if it's system is not used in accordance with the instructions as described in this manual.
Since Prinzen BV is constantly improving its systems it may be possible that there are small differences between your system and this manual.
Though this manual has been put together with the utmost care, Prinzen BV cannot accept any responsibility for costs, damage or personal injury arising from any fault and/or incompleteness in the content of this document.

GENERAL

This manual is intended to be used by service engineers of Prinzen and its official dealers. It contains important information concerning safety and adjustment of the Prinzen BV system. For uncomplicated functioning of the system, read this manual carefully and adjust according to the directions in this manual.
Beside the design and the used materials also the correct adjustment of the system has great impact on the functioning, the life span and the operational costs of the system.
This manual will help you to gain knowledge for correct adjustment of the system.

A Prinzen BV system meets the demands, mentioned in the European machine guideline (CE).

CE

COPYRIGHT

GENERAL

This manual contains important information concerning:

- Safety
- Installation
- Adjustments

Read and understand this total service manual before starting to adjust the system. Beside this manual also knowledge about the operating, maintaining and cleaning of the system is necessary for a safe and correct adjustment of the system. Also read and understand the complete user manual of the system before starting to adjust it.
Never change the sequence of procedures as described in this manual.

SAFETY REGULATIONS

Before starting to adjust the system first read this chapter and chapter Safety.

LEGAL REGULATIONS

All safety directions stated in this manual must be observed.

Along with the safety regulations in this chapter the instructions of the qualified trade organization of your country must be observed to avoid accidents.

Before starting to adjust the machine always consult the safety manager of the company to discuss if a work permit is required for this job.

All safety devices, installed in the machine by the manufacturer and the indications mentioned in the manuals are conditions to control the machine safely.

Technical changes, which influence the safety working of the machine, may only be executed by the service department of Prinzen.

Do not change controls, and/or PLC programs, without written permission from Prinzen because this may affect the safety of the machine.

Only use genuine Prinzen parts or CE-certified parts for replacement.

Prinzen cannot be held responsible for any consequential damages to the system or other installations that were caused by technical changes, unprofessional maintenance and repairs on our system, which were executed by the dealer.

Warranty becomes invalid when consequential damages to the system, caused by technical changes, unprofessional maintenance and repairs, were executed by the dealer.

HOW TO USE THIS MANUAL?

The manual is constructed to provide a maximum amount of information with a minimum amount of searching. The key to easy reference is the Table of contents. Familiarize yourself with it and you won't have any trouble locating information from any area of machine.

TARGET GROUPS

Dealer:
The dealer is the person (concern) that represents Prinzen BV. The dealer must take care that it's service engineers will read this manual.

Professional:
A professional is someone who can assess the duties appointed to him on account of his education, knowledge and experience and who can assess the dangers attached, thereby avoiding these dangers.

Service engineer:
The service engineer is a professional employed by Prinzen or its official dealers. The service engineer must read the total manual.

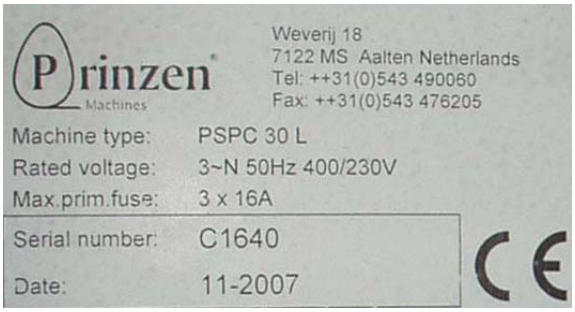
SYMBOLS

Symbols are used in the manual when special attention/caution is required while working on the system. The special symbols and their meaning are depicted in the below table.

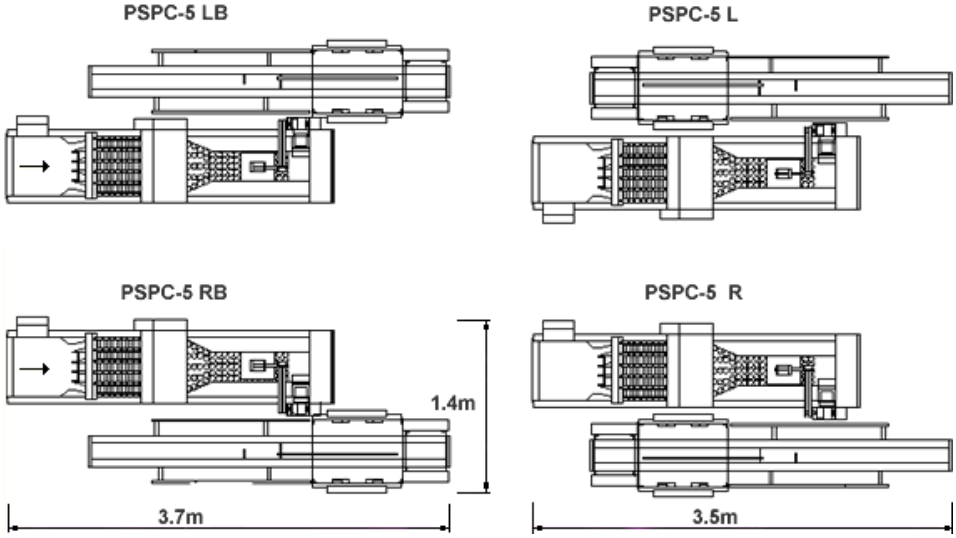
Symbol:	Meaning:
	**DANGER!** This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury or death.
	**CAUTION!** This symbol is used when instructions should be followed to the letter. If not they may result in permanent personal injury.
	**ATTENTION!** This symbol is used when instructions should be followed to the letter. If not they may cause damage to the system.
	**TIP!** This symbol is used as a helpful hint to simplify the execution of certain tasks.

EXPLANATION OF MACHINE TAG

Each machine has a unique serial number printed on the machine tag, which can be found in the electrical cabinet. When contacting the Prinzen service department have this number available.



Machine type:
This is the name of the system followed by the layout of the system:



Rated voltage:
This is the required power supply for this system: wires/frequency/power.
Wires 3~N = 3 phase + N + PE
Wires 3~ = 3 phase + PE
Wires 1~ N = 1 phase + N + PE
Frequency = 50 Hz
Power 400/230V = 400 V phase voltage, 230 line voltage.
Power 230V = 230 V phase voltage or 230 V line voltage.

Maximum primary fuse:
This is the necessary external fuse.

Serial number:
This is the unique serial number of this system.

Date:
This is the construction month and year of the system.

ADDRESS PRINZEN

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1. SAFETY

GENERAL

Only persons meeting the following requirements are authorized to work with the system. These persons should be:
- Skilled and specifically trained for their duties.
- Familiar with the contents of this manual.
- Familiar with the locations of the emergency buttons and other safety devices.
- 18 years old or above.
- Familiar with the national and regional regulations regarding safety.

These persons should have reached the minimum legal age required to perform this work.
These persons are NOT under influence of any drug, medicine or alcoholic drink.

The system is designed for packing eggs into specific packaging. Any other use of the system is not permitted.

SAFETY INSPECTION PROCEDURE

Before starting any adjustments and after finishing an adjustment job, make sure that all protective covers are in place, all lockable doors are closed and locked, all covers are closed and the emergency button operates correct. Check the emergency button to assure proper operation.

1. Push the emergency button.
2. Push the start button, the machine should not start.
3. Turn emergency button clockwise to release it.
4. Make sure that the machine does not start when the emergency button is pressed.

If the machine operates when the emergency button is pressed, this machine is not safe to operate. Immediately repair the defective emergency button.

Make sure all warning labels are legible and are not damaged or removed. Replace them immediately when necessary.

SAFETY REGULATIONS

Do not use the system when safety devices have been removed. This system may contain sharp edged parts, moving parts and rotating parts.
When protective covers are removed, sharp edges and pinch points may be exposed. Use extreme caution and avoid touching or striking these areas with your hands or body because they may cause injuries.

Do not enter parts of your body or objects into openings in the system. This may lead to serious physical injury or damage to the system. It is dangerous to be in, on or under the system while it is operational.

Loosely hanging clothing, wide sleeved clothing, ties, chains or rings are prohibited. Long hair should be worn tied back.

Make sure that there is sufficient light around the machine.

Do not touch or come near moving or rotating parts. Physical contact with these parts is dangerous.

Do not stand or walk on any of the system parts.

Do not work alone on the system. At least one other person should be present

Before starting to adjust the machine follow the steps mentioned below:
- Switch off the machine and secure it against accidental switching on.
- Post “Do not switch on” warning sign on the main switch:
- Operate the emergency button.
- Make sure that no components are moving.

Before switching on the machine, you must check the following:
- All safety devices are in place and are functioning.
- No other persons are in, underneath or above the system.
- No tools or objects are in the system.
- No other persons are at risk.

Do not use water to clean electricity cabinets and other electronic components.

For save and easy adjustment keep the machine and the area and floor around the machine clean, free of production materials, oil, grease and obstacles.

When an extension cable is used for power supply, make sure that the cable diameter in relation to the length of the cable is correct. Make sure the cable is completely unrolled

When the safety devices are put out of operation, the machine must be switched off and secured against accidental switching on.

	**DANGER!** Failure to obey safety regulations may result in permanent personal injury or death.
	**ATTENTION!** Failure to obey safety regulations may result in damage to the system.

SAFETY PROVISIONS

Before operating the machine the safety devices must be checked for correct functioning. Also the protective covers must be mounted before starting to use the system. Repair or replace safety devices before using the system if they do not work properly.
Never rely solely on safety devices. Always switch off the system and lock up the power source (1) before working on the machine.

DANGER!
Protective covers safeguard dangerous machine areas. These covers are of utmost importance to operate the machine safely. Never operate the machine when protective covers are removed because serious injury or death may occur!

DEFINITION OF SAFETY DEVICES

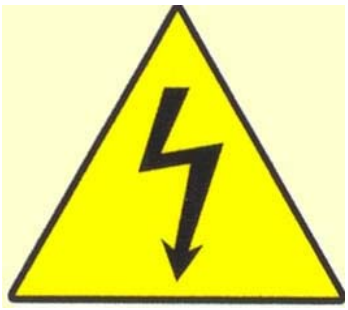
Safety devices are: lockable doors (2), emergency buttons (3), and protective covers.

The emergency button prevents the machine from operating and should stop the machine immediately when it is pressed. Protective covers shield off dangerous moving parts. These covers cannot be removed without tools.
Lockable doors are doors that can only be opened with a key. The key should only be in possession of a supervisor.

DANGER!
Lockable doors safeguard dangerous machine areas. These doors are of utmost importance to operate the machine safely. Never operate the machine when doors are open or not locked because serious injury or death may occur!

WARNING LABELS

The Prinzen system makes dangerous movements. The system also contains dangerous parts when they contact the body. The following labels are posted as a warning. Understand and remember the meaning of the warning labels.



This sign is used to warn for dangerous voltage inside a cabinet. Contacting parts inside this cabinet may result in permanent personal injury or death.

This sign is used to warn for dangerous movements. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

This sign is used to warn for the danger of limbs being pulled in. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

This sign is used to warn for crushing danger. Keep a safe distance to those parts. Disregarding this warning may result in permanent personal injury.

2. INSTALLATION

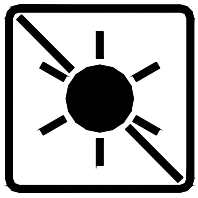
SAFETY REGULATIONS

Before starting to install or work on the system first read the chapters Introduction and Safety.

TRANSPORT

For the safety of the installation and personnel, the following points are of importance:
- Use qualified and authorized personnel to carry out the transport and installation.
- Use approved tools, materials, hoisting- and lifting equipment.
- Use tools and materials that meet the measurement and weight of the parts.
- Use hoisting and lifting equipment that meet the format and the weight of the parts.
- Ensure that the paddles of fork trucks are of the right length and distance.
- Affix the paddles of the fork truck to the placed provided.
- Ensure that nothing can move unexpectedly.
- Make sure there is nobody under raised parts
- Some parts may have a high-leveled center of gravity and have the danger of tipping over.

STORAGE



On arrival the machine must be checked immediately for damages. Damages must be reported to the Transport Company and to Prinzen.

Remove the packing material environmentally friendly.

When the machine must be stored for some time, the following precautions must be taken:
- Store the machine in a dry room.
- Use a covering suitable for the local weather conditions.
- Do not expose the system to the sun
- Close off any openings
- Ensure that the module or part is rigid and cannot be moved or fall
- Protect the machine against the possibility of collision.
- Take preventive actions against vermin.

Thoroughly clean and inspect the system for damages after a period of storage before installation of the system.

ASSEMBLY AND INSTALLATION

The assembly and installation must be carried out by personnel of Prinzen, or by engineers assigned by Prinzen, trained for this purpose. They also see to initial operation of the installation and the training of the operators.

PREPARATION

Before actual assembly and installation, the buyer must see to the proper preparations to facilitate correct installation.
The connection of the system to the electricity grid has to be done by a licensed electrician.
All activities must be carried out according to local and national regulations, the requirements of the company and the required provision for the installation.

Activities include:
- Foundations
- Power supply
- Air supply
- Clean surroundings
- Safety precautions

FACILITIES

Power supply must be conform the information on the machine tag.
Electrical cable diameter, fuses and PE connections must be in accordance with the local regulations
Facilities for air must be in a clean condition.
The supplied air must be clean and according the requirements.
The floor must be flat and smooth with sufficient bearing power.
The climate around the machine must have a normal working temperature (+10ºC to 30ºC).

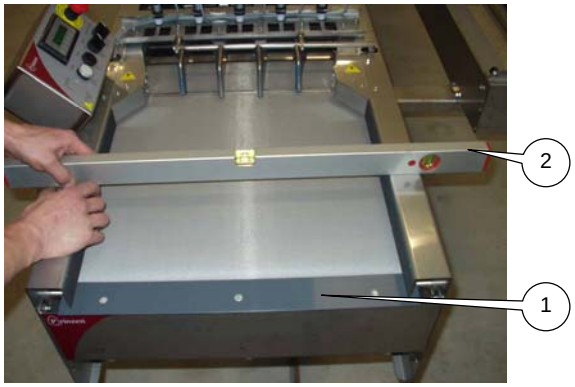
INSTALLATION DATA

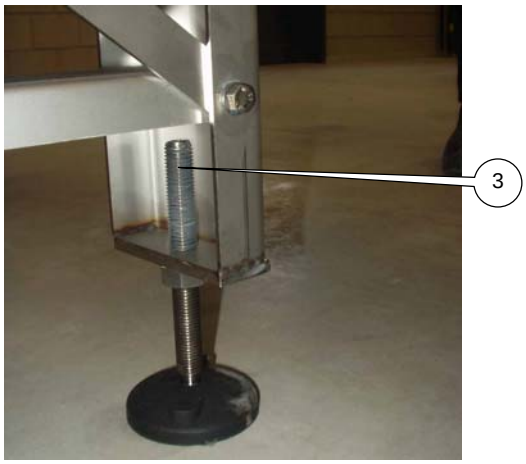
Weight:	
Packer	: Approximately 500 kg
Output conveyor	: Approximately 100 kg
Electrical data:	
Connection voltage	: 400V 3 phase + N + PE 50Hz
Connection	: 5x2,5 mm²
Pre fuse 3 phase	: 16 Amp, slow blowing
Pre fuse 1 phase	: 25 Amp
Earth leak protection	: A minimum leakage current of 200 mA (inverter)
Power	: 1.5 kW
Maximum voltage deviation	: -6% to +10%.
Electrical protection	: IP55
Other possible connections	: 3 phase + N + PE 50 Hz 3 phase + PE 50 Hz 1 phase + N + PE 50 Hz Power 400/230V = 400 V phase voltage, 230 line voltage. Power 230V = 230 V phase voltage or 230 V line voltage.
Pneumatic data:	
Air consumption	: 11 normal Litre/minute
Air pressure	: in between 8 and 10 bars (System air regulator reduces it to 6 bars)
Connection	: 13 mm

INSTALLATION

SAFETY REGULATIONS

Before starting to install the system first read the chapters Introduction and Safety.

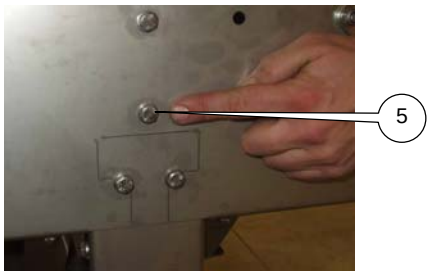




PACKER

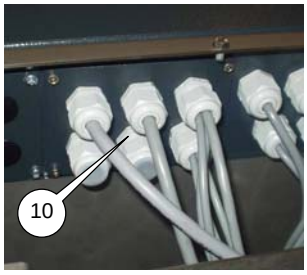
Follow the below adjustment procedure for installation of the packer:

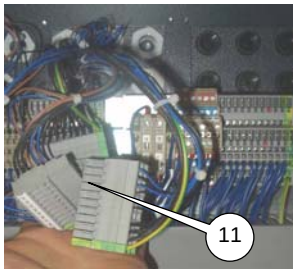
1. Place the packer with the infeed belt in front of the egg-collecting belt. The distance between the strip of the infeed belt and the egg-collecting conveyer should be a few mm.
2. Level the packer in both directions.
3. Adjust the height of the packer and level the packer by turning the 4 feet in or out.



OUTPUT CONVEYOR

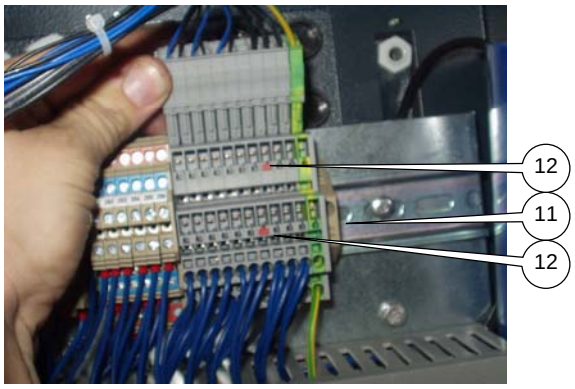
4. Place the supporting beams into the cut-away close to and above the feet of the packer.
5. Fasten the beam on the other side of the packer to the packer.
6. Place the output conveyor on the beams and hand tighten it to the beams with the bolts. It should be loosely fixed and it must still be possible to move the output conveyor in both directions.
7. The distance between the output conveyor and the packer must be approximately 30 cm (normally the position of the output conveyor is marked on the supporting beams, fine tuning of the position of the output conveyor is done later on in this installation procedure). Make sure the output conveyor is parallel with the packer.
8. Level the output conveyor in both directions.
9. Adjust the height of the output conveyor and level the output conveyor by turning the 2 feet in or out.





ELECTRICAL CONNECTION OUTPUT CONVEYOR TO PACKER

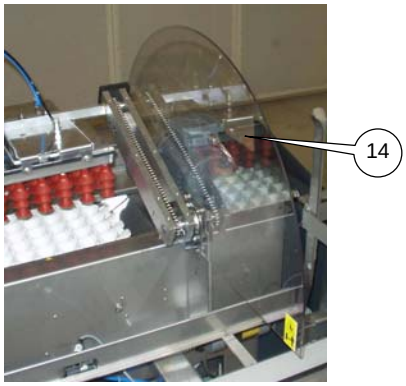
10. Place the cables from the output conveyor into the electrical cabinet of the packer.
11. Put the 4 plugs into their belonging connector. The connectors are positioned in the right top corner of the electrical cabinet.
12. Each plug/connector is protected against wrong plug insertion. There are 4 unique plug connector combinations.

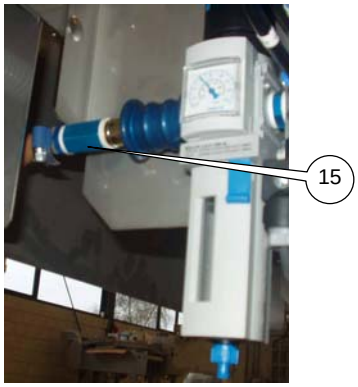


VACUUM HEAD PROTECTION

ATTENTION!
Never change the position of the vacuum head by hand when the systems power supply is off. This results in a lost encoder position and may damage the system when started.

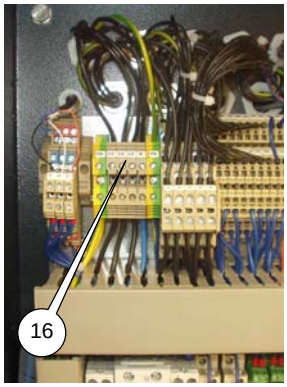
13. Remove the wooden support that protects the vacuum head during transportation.
14. Place the transparent protection screen for the vacuum head movement.

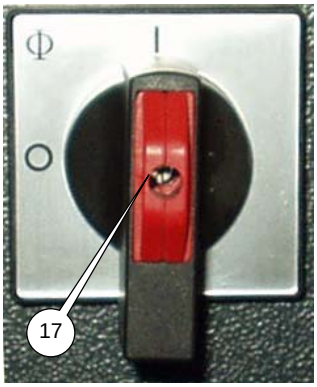




POWER AND AIR SUPPLY

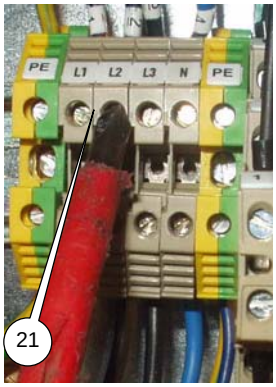
15. Connect the air to the air regulator underneath the output conveyor.
16. Connect the main power to the main power terminals in the left top corner of the electrical cabinet. Connect the phase lines to L1, L2 and L3. Connect the neutral to N and the protective earth to PE. Measure the voltages between all phases and between all phases and the Neutral. Make sure that the measured values correspond with the machine tag.





ATTENTION!
Make sure the main power corresponds with the voltage on the machine tag.

17. Switch on the main power switch.
18. Read the warning label attached to F3. Do not remove it yet!



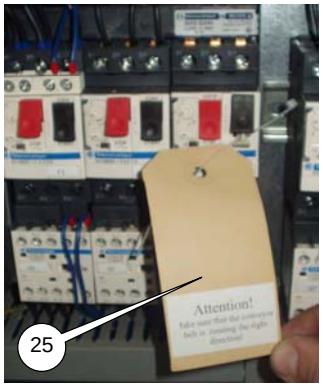
ATTENTION!
Make sure F3 and Q3 are OFF. When F3 and Q3 are ON, starting the system may damage the clutch of the denester. Follow below installation procedure carefully to prevent this.

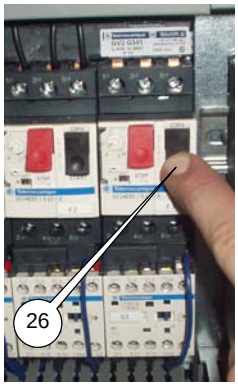
19. Press the start button once to reset the system and press it a second time to start it.
20. Check the running direction of infeed belt. The direction must be towards the infeed gates.
21. When the rotation direction of the infeed conveyor is wrong, press the stop button and switch off the system. Also switch off the main power supply to the electrical cabinet of the system and swap the 2 wires L1 and L2 of the main power supply.
22. Check the running direction of the infeed belt again and make sure it is running towards the infeed gates now.

ATTENTION!
Make sure the infeed belt direction is correct. When the infeed belt direction is correct, we assume that the output conveyor direction is also correct. Wrong running direction of the output conveyor damages the clutch of the denester.

DIRECTION OF ROTATION OUTPUT CONVEYOR

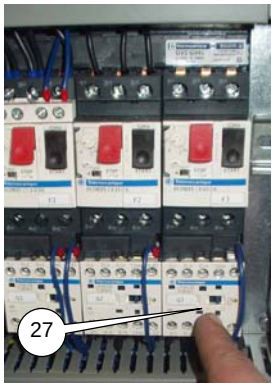
23. Press the stop button.
24. Make sure the “Machine stopped by stop button” text is visible on the screen.





ATTENTION!
Make sure the text on the screen is still “Machine stopped by stop button”. Check the rotation direction of the outfeed conveyor immediately after pressing the start button of F3 and Q3. When the rotation direction of the outfeed belt is not from the denester towards the vacuum head, stop the belt immediately by pressing the red stop button of F3 or releasing the start button of Q3. Disregarding this warning will damage the clutch of the denester.

25. Remove the warning label from the start button of motor protection switch F3
26. Press the black start button of F3 and immediately check if the output conveyor is running. When this is the case immediately press the red stop button of F3.
27. Activate the blue switch from 0 to 1 of contactor Q3 **shortly** to check the rotation direction of the output conveyor. Release the blue switch immediately. Make sure that the output conveyor is running from the denester towards the vacuum head.
28. When the rotation direction of the output conveyor is wrong contact the service department of Prinzen.



TESTING

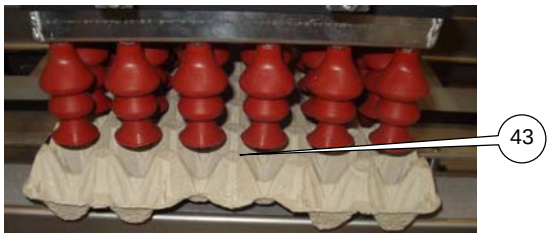
29. Push the emergency button. Make sure the systems stops immediately.
30. Make sure the “Emergency stop! Unlock button and press start” text is visible on the screen.

FIRST EGG

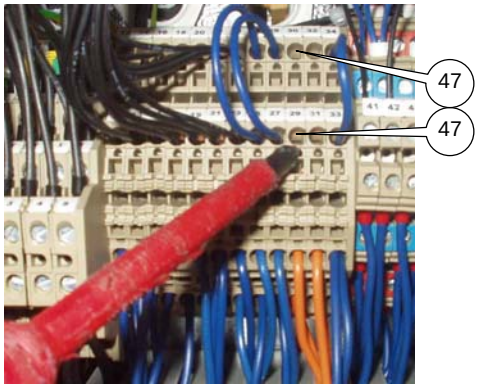
31. Set the tray selector to 1
32. Set the clear button to 1
33. Start the system by pressing the start button twice.
34. Place an egg onto the packer and wait until the egg is transported towards the end of the cup conveyor.
35. As soon as the vacuum head moves towards the egg to pick it up, press the stop button.
36. The vacuum head stops at its pick up position. The pick up position depth is factory adjusted. See adjustment procedure of the vacuum head pick up position.
37. The suction cups of the vacuum head must fit into the cups of the cup conveyor.

OUTPUT CONVEYOR POSITION

38. Pull the 30 cell tray guides up.
39. Place a 30-cell tray on the tray set position.
40. Start the system by pressing the start button.
41. As soon as the vacuum head picks up the egg and starts moving towards tray, press the stop button.



42. The vacuum head stops at its tray set position. The tray set position depth is factory adjusted with a hatch tray. See adjustment procedure of the vacuum head tray set position.
43. The suction cups of the vacuum head must fit into the tray.
44. In case of not centered suction cups, change the position of the output conveyor until the suction cups of the vacuum head are on the correct position above the tray (the bolts that fasten the output conveyor on the supporting beams are only loosely fixed).
45. While changing the position of the output conveyor make sure that the output conveyor is parallel with the packer.
46. After adjusting the output conveyor position tighten up the bolts (2 per beam) that connect the output conveyor to the packer.



CONNECTION EGG COLLECTING CONVEYOR

47. A volt free contact is available for a start / stop signal from the packer to the egg collecting conveyor. Maximum contact load permitted is 230Vac, 4 Amps.
    Connect a cable from the egg collection conveyor to connections 29 and 30 of terminal X1 in the top center of the electrical cabinet.
    The volt free contact is controlled by relay K10. When the contact is open, the egg-collecting conveyor must stop. When the contact is closed the egg-collecting conveyor is allowed to supply eggs to the packer.
48. Check the start and stop timers for the egg-collecting conveyor. When the infeed belt of the packer is full with eggs from the egg-collecting conveyor the egg pressure switches at the side of the infeed belt are activated. When these switches remain activated for a certain time (stop delay time), a signal is sent to the egg-collecting conveyor to stop supplying eggs. When the switches are no longer activated, a certain time later (start delay time) a signal is sent to the egg-collecting conveyor to supply eggs again.
    Adjust the delay times to get a smooth flow of eggs without too much starting and stopping of the egg-collecting conveyor.
    For adjustment of the timers see the user manual.
49. Train operators of the system for operation, cleaning and maintaining the system as described in the user manual.

DISASSEMBLY

If, for reasons of maintenance, service or alterations the installation or a part of it must be disassembled, we advise you to have this done by Prinzen personnel or its official dealers.

When disassembling parts and materials, take note of the applicable environmental regulations.

All activities must be carried out according to local and national regulations and company safety requirements.

First ensure that the power supply, air supply and such have been correctly and safely disconnected.

Disassemble the parts in principle in the reverse order as to the assembly.

If necessary, note settings and positions, and label cables, wires and connections.

3. COMPONENTS ADJUSTMENTS

GENERAL ADJUSTMENTS

SAFETY REGULATIONS

Before starting to adjust the system first read the chapters Introduction and Safety.

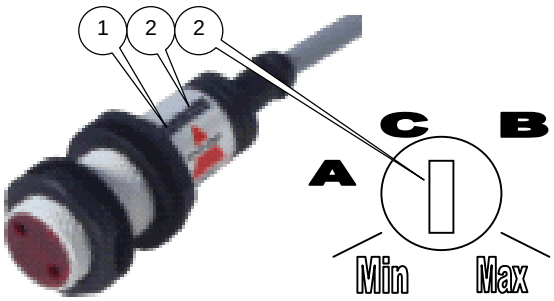
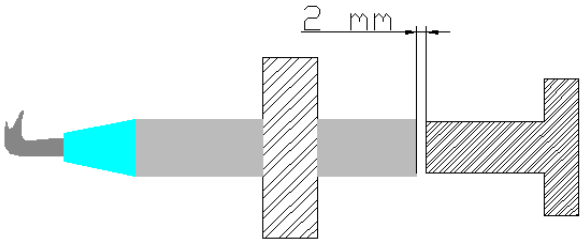


PHOTO SWITCHES

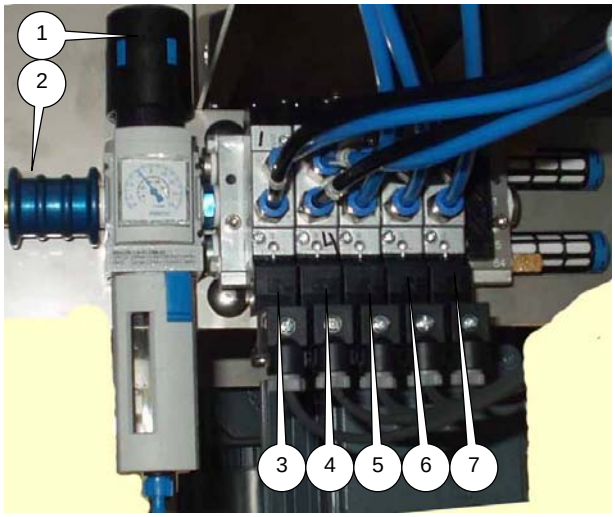
In the Prinzen systems, often Carlo Gavazzi photo switches are used for detecting eggs or trays. The detection distance of these sensors are adjustable:
First make sure that the photo switch is mechanically positioned correct. The photo switch should be able to detect the object (egg, tray), but should not be influenced by other objects or parts (even while the system is running). The yellow LED turns ON when an object is detected. Adjust the photo switch as follows:

- Without an object the LED (1) should be OFF.
- Turn the potentiometer (2) clock wise until the LED goes ON (B).
- Place the object you need to detect in front of the photo switch, LED should remain ON.
- Turn the potentiometer counter clockwise until the LED goes OFF (A).
- Set the potentiometer in between A and B position (C).



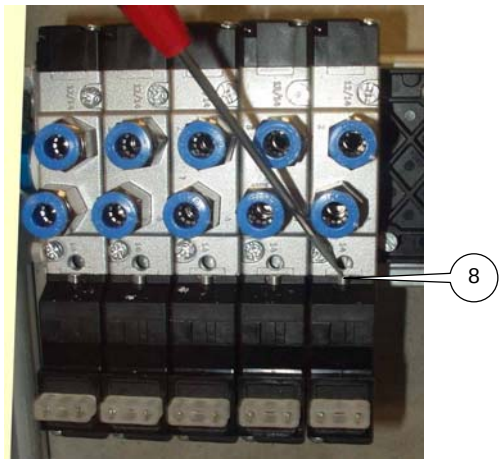
INDUCTIVE PROXIMITY SWITCHES

In the Prinzen systems, often Omron inductive sensors are used for controlling the positioning of moving parts.
The distance between the tip of the sensor and the detectable parts must be 2 mm.



AIR SUPPLY

Normally the Prinzen systems need an air pressure of approximately 6 bars. Adjust this air pressure with the primary pressure regulator. Pull the knob (1) up and turn it to change the air pressure. Press the knob down to lock it again.
On the quick connector a manual ON/OFF switch (2) is positioned. Move the switch towards the regulator to switch the air ON. Move away from the regulator to switch the air OFF.

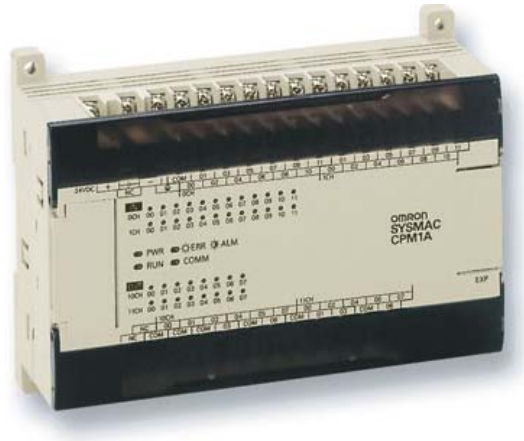


VALVE BLOCK

On the valve block the valves for controlling the following parts are positioned:

3. Vacuum head outside tray set position
4. Vacuum head inside tray set position
5. Hatch tray stopper cylinder 1
6. Hatch tray stopper cylinder 2
7. Hatch tray stopper cylinder 3

Manual activation of the valves (controlling the cylinders) is possible by pressing on the manual-activating pin (8).



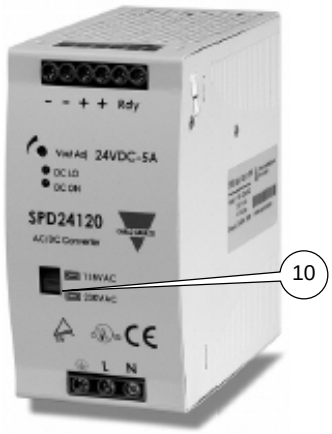
PLC

The system is controlled by a PLC. Via input ports it receives signals (from sensors) and it sends signals (to relays) via output ports.
LEDS on the PLC indicate which inputs and outputs are ON.
For trouble shooting these LEDS, together with the electrical drawings, may help you to find the cause of a problem.
The Power LED and the Run LED must be ON.

FREQUENCY INVERTERS

ATTENTION!
The parameters of the frequency inverters are factory set. We advise you to consult Prinzen before changing these parameters.

- Press the menu key (1) until the PRGM indicator (2) is lit.
- Press the up (3) or down arrows (4) to view a certain parameter.
- Press the enter key (5) to display the parameter value.
- Press the up or down button to change the parameter.
- Confirm the change with the ENTER button.
- Press the menu key (1) until the FREF indicator (2) is lit.

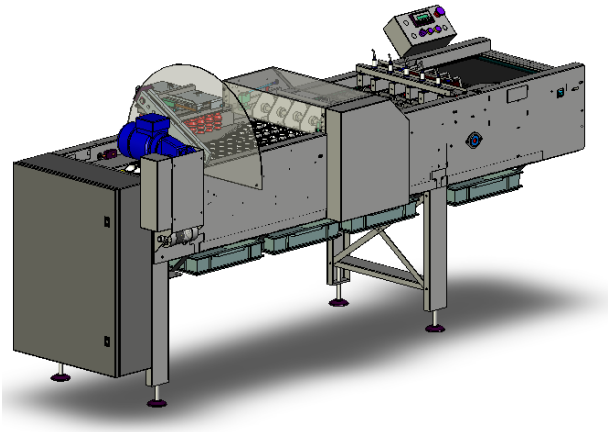


POWER SUPPLIES

ATTENTION!
The power supplies are factory set. Do not change the power supply switch and do not change setting of the potentiometer.

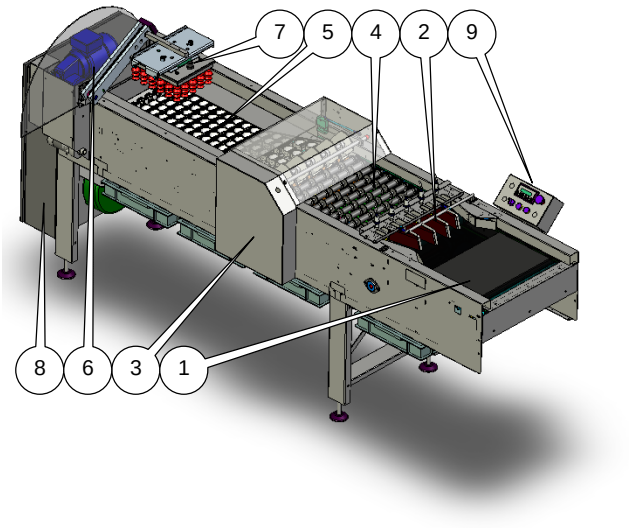
The power supply switch (10) must always be set to 230 Vac, even when your local power supply has a different voltage.

4. PACKER



DESCRIPTION PACKER

Use:
The Packer is designed to receive a random supply of eggs and assemble these eggs into fixed patterns of 25 or 30 eggs and place them with the pointed end downwards into a tray.

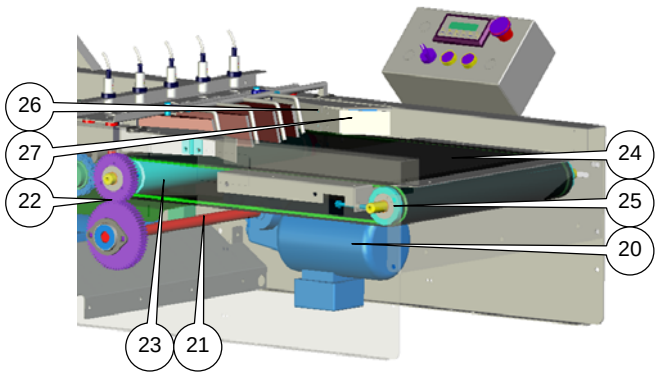


Construction:
The packer consists of:

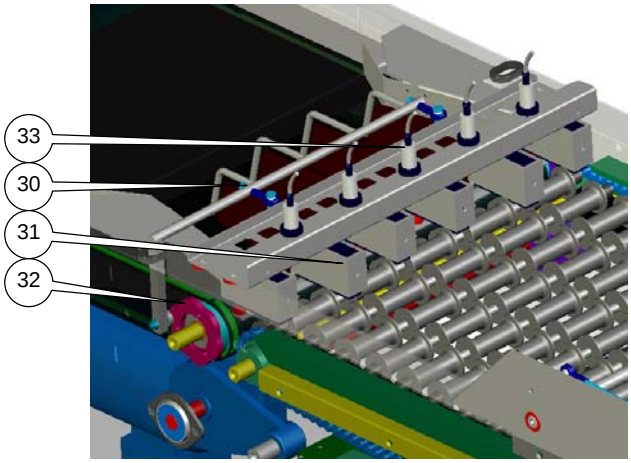
1 Infeed conveyor
2 Infeed gate
3 Main drive
4 Roller track
5 Cup conveyor
6 Transfer lever
7 Vacuum system

Attached to the packer are:

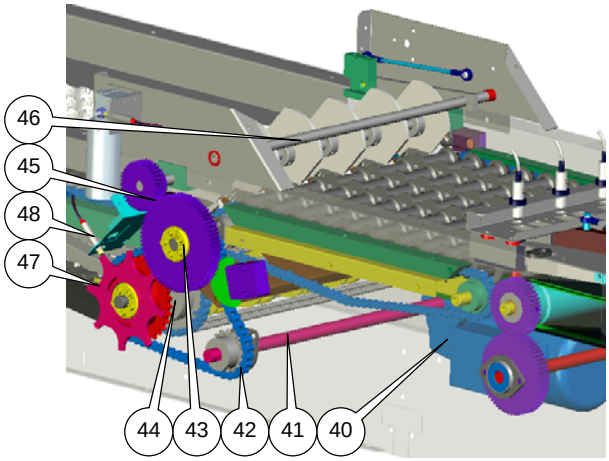
8 Electrical cabinet
9 Operating panel
10 Outfeed conveyor
11 30 cell tray denester
12 Hatch tray denester



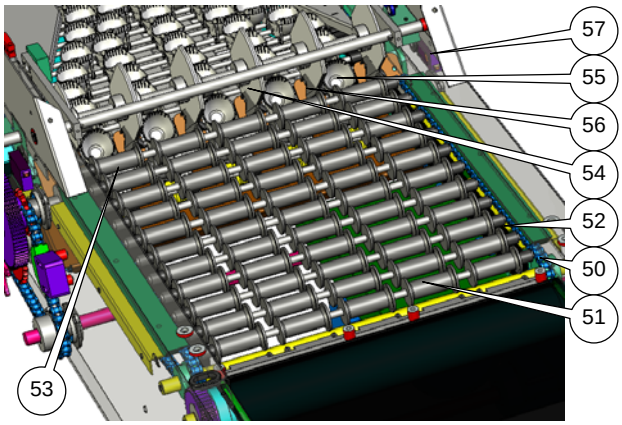
Construction Infeed conveyor:
An AC motor (20) situated underneath the infeed conveyor is directly mounted on a shaft (21). Via a gearwheel construction (22), this shaft drives the drive roller (23) of the infeed belt (24). The belt runs over this drive roller and a tension roller (25).
At the end of the belt, on both sides of the belt, an egg pressure control switch is positioned. This is a micro-switch (26) controlled by a lever (27).



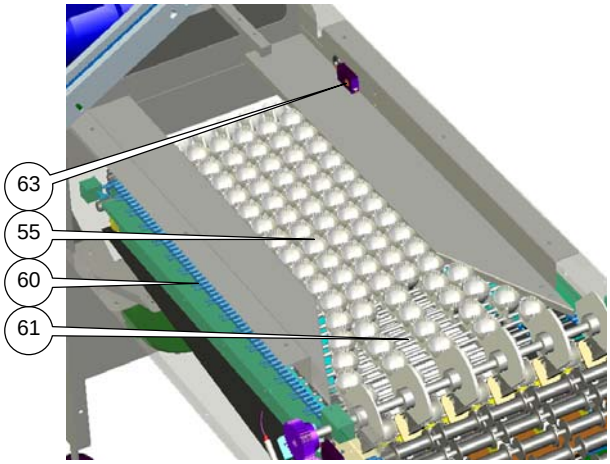
Construction Infeed gate:
The infeed gate consists of a shaking fork (30), gate blockers (31) and egg detection.
The shaking fork movement is controlled by a cam (32) mounted on the infeed belt's drive roller.
Above each gate a sensor (33) detects eggs.

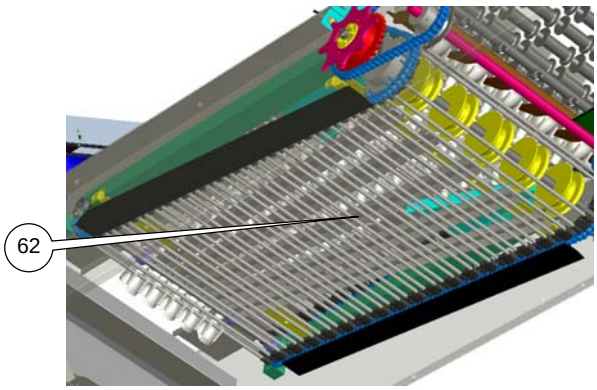


Construction Main drive:
A frequency-controlled motor (40) situated underneath the roller track is directly mounted on a shaft (41). Via a main chain (42) and sprockets this shaft drives the roller track drive shaft (43), the cup conveyor drive shaft (44) and, via a gearwheel construction (45), the flap shaft (46).
On the drive shafts of the cup conveyor a cam discs (47) with an inductive sensor (48) controls the timing of starting and stopping of the main drive.

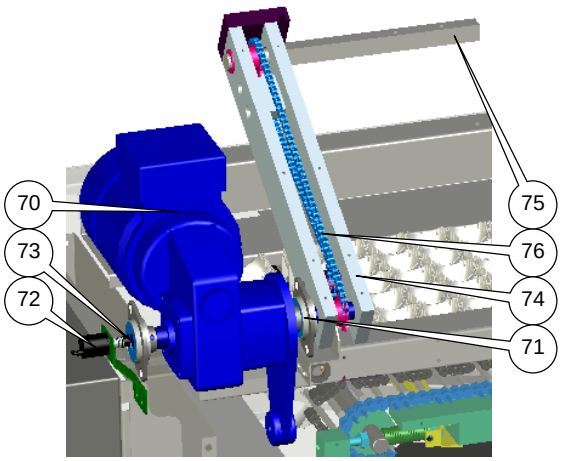


Construction Roller track:
The roller track drive shaft drives 2 transport chains (50) on both sides of the packer, transporting shafts with rollers (51). On the topside the transport chains are guided. The shafts with rollers are touching black rubber support guides (52) on both sides of the packer. This creates a rotating movement of the rollers.
At the transfer position an egg lifting system, the flap shaft and the cup detection is situated.
The egg lifting system consists of star shaped cams (53), positioned on the roller track drive shaft on the center position of each roller.
On all positions in between 2 rollers, 2 flaps (54) are mounted on the flap shaft. In between the cups (55) wedge-shapes blocks (56) push both flaps towards the cups.
The cup detection is a transmitter receiver sensor (57), which stops the machine when eggs remain at the transfer position.

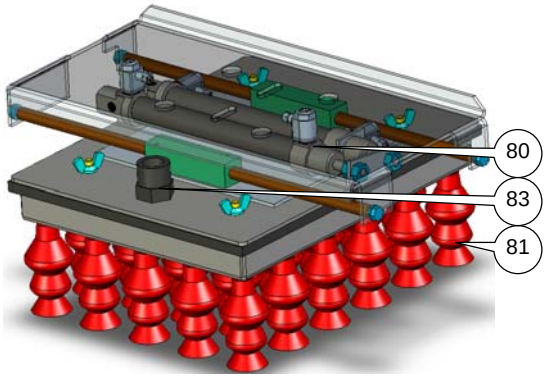


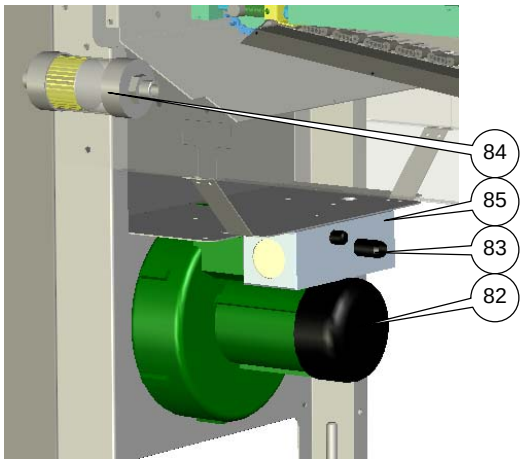


Construction Cup conveyor:
The cup conveyor drive shaft drives 2 transport chains (60) on both sides of the packer, transporting shafts (61) with cups (55). On the top- and bottom side the transport chains are guided. The cups are able to slide on the shafts. At the transfer position, the cups are on the same positions as the rollers of the roller track. During the movement of the cups towards the transfer lever, the cups are guided towards the center of the conveyor. At transfer lever position, the cups are exactly in the center. At the bottom of the packer, rows of cups slide into guides (62) that separates them and guide them to the correct position for receiving eggs at the transfer position.
A transmitter receiver sensor (63) detects eggs in the cups at the transfer lever position and stops the conveyor.



Construction Transfer lever:
A frequency-controlled motor (70) situated above the packer is directly mounted on a short shaft (71). On one side of the motor the shaft is connected to a rotary encoder (72) via a flexible coupling (73). The other side of the shaft is connected to the tip of a beam (74). At the other tip of the beam a shaft is connected to the vacuum head holder (75) that carries the vacuum head. Inside the beam both shafts are connected with each other by a chain and sprockets (76). This keeps the vacuum head holder horizontal during the movement of the beam.





Construction Vacuum system:
The vacuum system consists of a vacuum head, vacuum hoses and pipes, a filter, a valve and a vacuum pump.
The vacuum head is able to move into 3 different positions using 2 air-controlled cylinders (80). Underneath the vacuum head the suction cups (81) are placed that carry the eggs.
The vacuum head is connected with the vacuum pump (82) via the vacuum hoses (83) and pipes, the vacuum filter (84) and the vacuum valve (85). The valve takes care of the vacuum during carrying the eggs and the blow off during placement of the eggs in the tray.

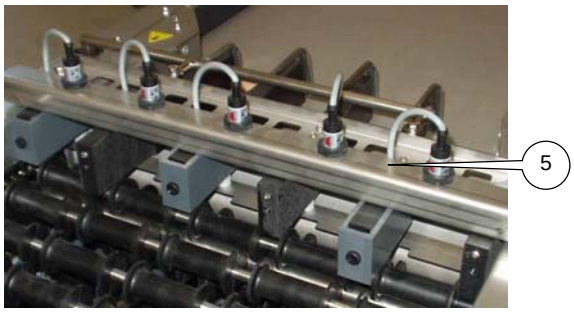
	**CAUTION!** Do not enter objects or body parts into the packer when it is running production.
	**ATTENTION!** Do not enter objects or body parts into the packer when it is running production.

Safety:
The packer is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the packer and do not touch it when it is running production.

ADJUSTMENTS PACKER

INFEED BELT TENSION

Adjust the tension of the belt in such a way that it won't slip on the drive roller during start up and during normal production with full load.
Loosen up the tensioning roller lock bolt (1).
Turn the tensioning bolt (2) Clock Wise for more belt tension and Counter Clock Wise for less belt tension.
Make the same adjustment on both sides of the conveyor! The distance between the lock bolt and the end of the conveyor (3) must be the same on both sides of the conveyor.



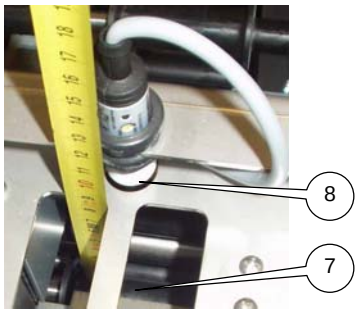
ATTENTION!
A too high belt tension may result in a damaged belt or wear on rollers and bearings.

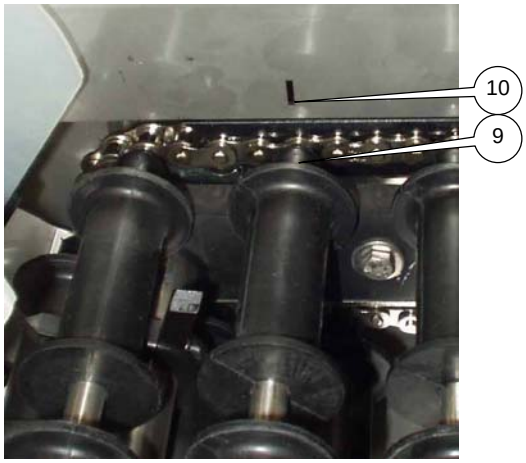
GATE BLOCKERS

Gate blockers prevent the possibility of 2 smaller eggs entering 1 gate.
When smaller eggs are produced keep all gate blockers in the infeed gates (4).
When the produced eggs are becoming bigger remove every other gate blocker (5).
As soon as most of the produced eggs are big and the infeed of eggs get stuck by the gate blockers, remove all gate blocker (6).

GATE EGG DETECTION

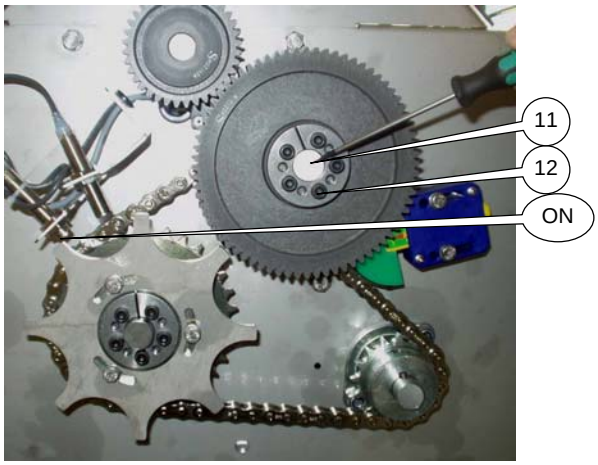
The sensors detecting the eggs at the gate are adjustable in height. Adjust this height when the machine is stopped. The distance between the roller (7) underneath the sensor and the tip of the sensor (8) must be approximately 95 mm.
When the roller track is running the sensor should not detect the rollers of the roller track!
For sensitivity adjustment of the sensor see adjustment of photo switches in this chapter.





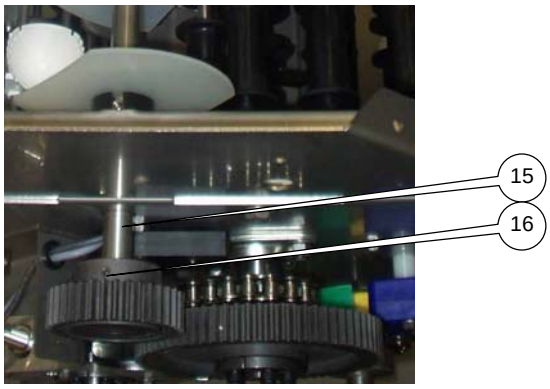
ROLLER TRACK STOP POSITION

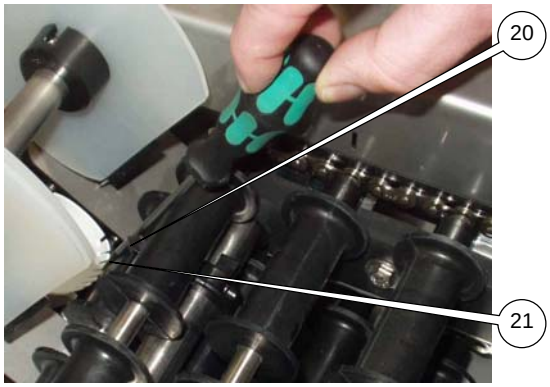
When the machine is normally stopped (stop sensor must be ON), 1 shaft with rollers (9) must be at the position of the mark in the frame (10).
To adjust this position, adjust the position of the drive shaft of the roller track (11) in the main drive.
Loosen up the 5 bolts of the taper lock (12) and place 2 bolts into the threaded holes to release the shaft from the taper lock. See loosen up taper locks further on in this chapter.
By hand move the roller track forward or backwards until one shaft with rollers is exactly at the position of the mark.
Place back the 2 bolts and tighten up the taper lock to the shaft. See tighten up taper locks further on in this chapter.

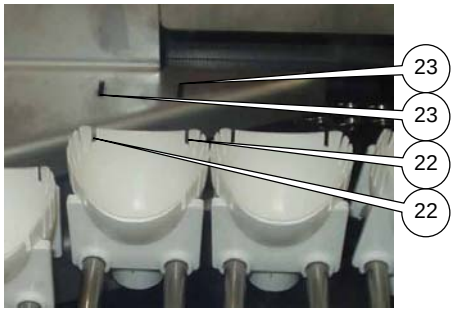


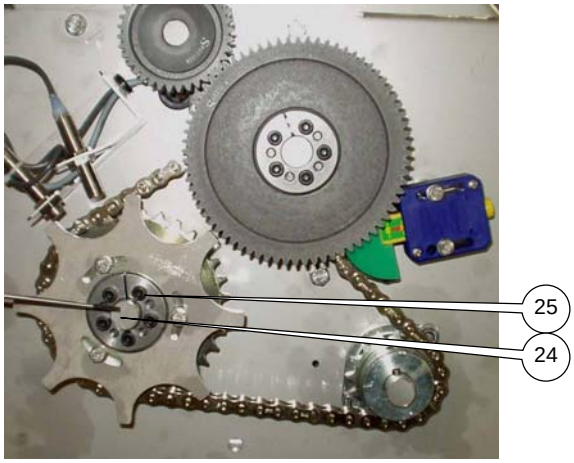
FLAP SHAFT STOP POSITION

When the machine is normally stopped, the position of the flaps (13) must be parallel with the mark in the frame (14).
To adjust this position, adjust the position of the flap shaft (15) in the main drive.
Loosen up the setscrew of the gear (16) to release the shaft from the gear. By hand rotate the flap shaft until the flaps are exactly parallel with the mark. Tighten up the setscrew.









CUP CONVEYOR STOP POSITION

When the machine is normally stopped the 2 rollers (20) of the roller track and the edge of a cup (21) must be positioned in a straight line. Normally when the 2 rollers and the edge of a cup are in a straight line, the slots in a cup (22) are at the position of the marks in the frame (23).
To adjust this position, adjust the position of the drive shaft of the cup conveyor (24) in the main drive.
Loosen up the 5 bolts of the taper lock (25) and place 2 bolts into the threaded holes to release the shaft from the taper lock.
By hand move the cup conveyor forward or backwards until the edge of a cup is in a straight line with the 2 rollers of the roller track.
Place back the 2 bolts and tighten up the taper lock to the shaft.

TIP!
Make sure the roller track is at the correct stop position before adjusting the cup conveyor stop position.

MAIN DRIVE STOP SENSOR

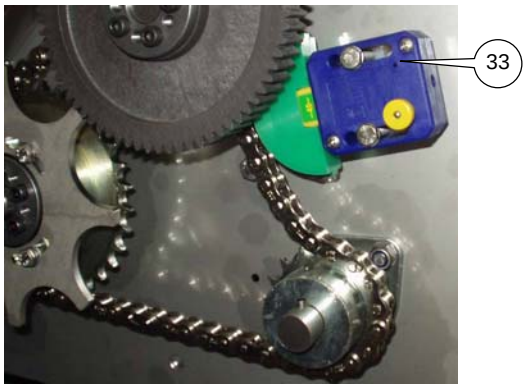
The stop sensor (26) determines the stop position of the main drive that controls the roller track, the flap shaft and the cup conveyor.
These stop positions are adjustable as described above. By adjusting the cam (27) all stop positions are changed.
In case of misalignment of all those parts in the same direction and the cup conveyor stop position is also misaligned with the suction cups of the vacuum lifter, change the position of the cam until all the parts have the correct stop position.
To adjust the cam, loosen up the 3 bolts and change the position of the cam. Tighten up the bolts afterwards.

TIP!
The stop sensor cam is factory set. Normally it is not necessary to change the position of the cam.

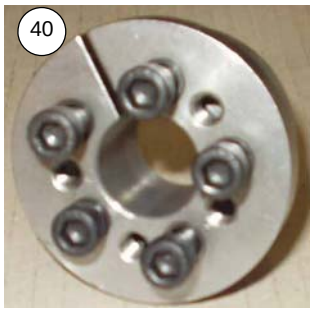
MAIN DRIVE CHAIN TENSION

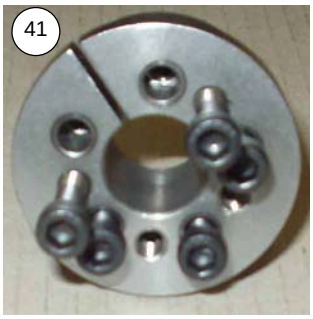
The chain tensioner (30) of the main chain is spring loaded. Because of the position of the fixation bolts (31), when the tensioner is completely to the right it is still possible to push in the tensioner with 10 mm (by the chain). When the chain tension is too low move the complete chain tensioner to the left.

To release the chain tension, take out the lock pin (32) from the rear of the tensioner, push the green chain tensioner in and place the lock pin into the lock hole (33).



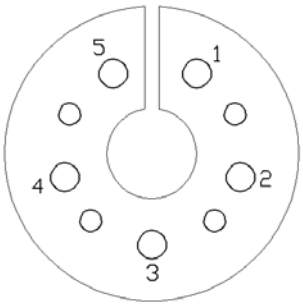
LOOSEN UP TAPER LOCKS



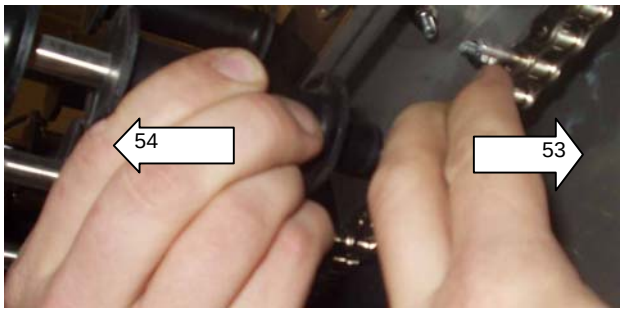


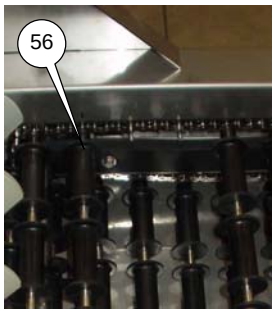
To loosen up the connection between a taper lock and a shaft, loosen up all 5 bolts (40) approximately 5 mm. Remove 2 bolts completely and place them into the threaded holes (41). Tighten up those 2 bolts to loosen the connection with the shaft.

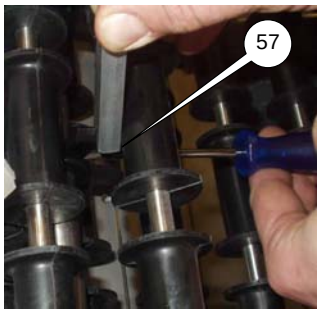
TIGHTEN UP TAPER LOCKS



Tighten up the bolts crosswise. Do this step by step. As soon as a bolt is a bit tight, tighten up the next bolt according to the following order: 1-3-5-2-4-1 (see alongside drawing).



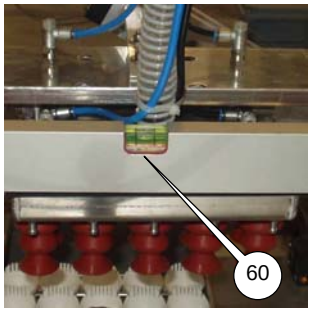


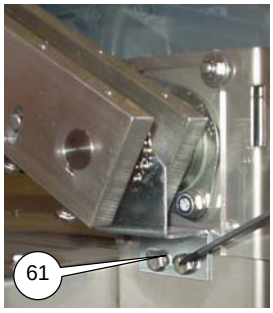


EGG LIFTER POSITION

When the machine is stopped, the distance between the star shaped cam and the next roller must be approximately 10 mm (50).
To check and to adjust this, measure it or use a block with a 10 mm thickness (51).
When adjustment is needed follow below steps:

52. Remove 2 shafts with rollers from the transport chains. Do this from the bottom side of the roller track.
53. Push the chain towards the side of the system.
54. Push the shaft with rollers towards the other side of the system.
55. Bring the gap in the roller track towards the star shaped cam by pushing the start button on the operating panel while the clear button is set to position 1.
56. Stop the roller track when the last shaft with rollers before the gap is at the cam position.
57. Loosen up 1 set screw of the cam. Place the 10 mm block in between the roller and the cam. Press the cam towards the block and tighten op the setscrew.
58. After all cams are adjusted, bring the gap in the roller track back to the bottom side of the system and place back the 2 removed shafts with rollers.



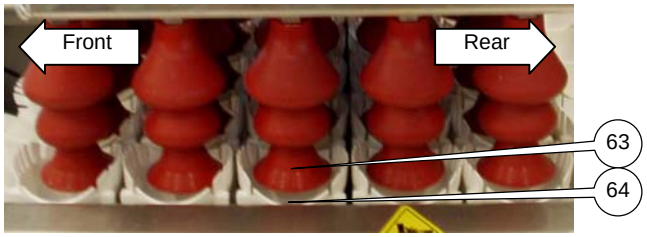


VACUUM HEAD HORIZONTAL POSITION

The position of the vacuum head must be horizontal in all positions (60). To adjust this, loosen up the 2 bolts (61) that hold the sprocket and reposition the sprocket. Tighten up the bolts afterwards.

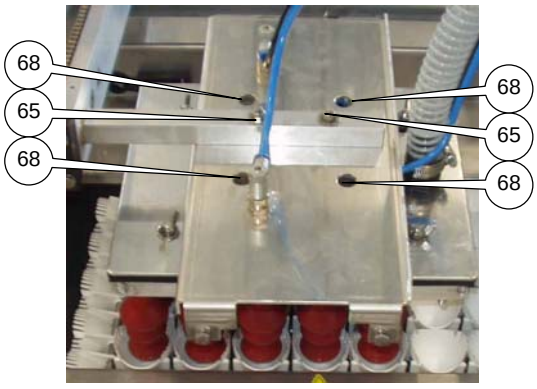
VACUUM LIFTER CHAIN TENSION

The chain tension of the vacuum lifter is adjustable by changing the position of the chain tensioner (62).



VACUUM HEAD FRONT REAR

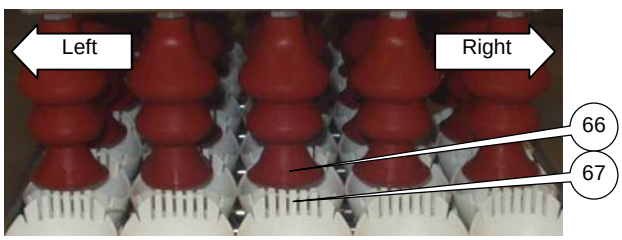
The suction cups of the vacuum head must fit into the cups. Make sure that the center suction cups (63) are exactly in the center of the cups (64).
Adjust the front rear position of the vacuum head by loosening up the 2 bolts (65) that connect the complete vacuum head holder on the beam. Move the complete vacuum head holder to the correct position and tighten up the 2 bolts again.

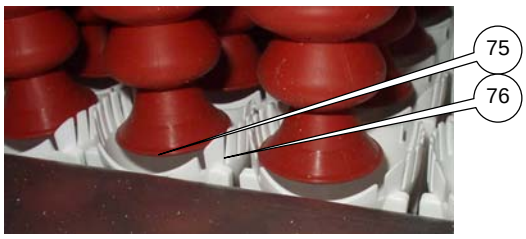


TIP!
Make sure the cup conveyor is at the correct stop position before adjusting the vacuum head position.

VACUUM HEAD LEFT RIGHT

The suction cups (66) of the vacuum head must fit into the cups (67).
Adjust the left right position of the vacuum head by loosening up the 4 bolts (68) that connect the vacuum heat to the vacuum head holder. Move the vacuum head to the correct position and tighten up the 4 bolts again.





VACUUM HEAD PICK UP POSITION

Follow below steps to move the vacuum head to the pick up position:

70. Set the clear button to 1
71. Start the system by pressing the start button twice.
72. Place an egg onto the packer and wait until the egg is transported towards the end of the cup conveyor.
73. As soon as the vacuum head starts moving towards the cup conveyor, press the stop button.
74. The vacuum head stops at its pick up position.

When the vacuum head is at the pick up position, the tip (75) of the suction cup should be at the same height as the end of the slots (76) in the cup.

TIP!
For the explanation how to change the pick up position, see the user manual.

VACUUM HEAD TRAY SET POSITION

Follow below steps to move the vacuum head to the tray set position:

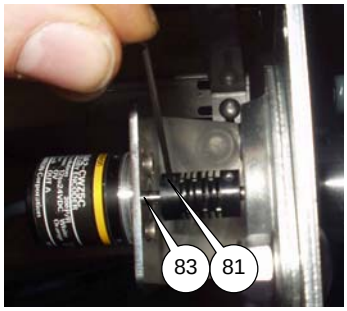
70. Set the clear button to 1
71. Start the system by pressing the start button twice.
72. Place an egg onto the packer and wait until the egg is transported towards the end of the cup conveyor.
73. As soon as the vacuum head picks up the egg and starts moving towards tray, press the stop button.
74. The vacuum head stops at its tray set position.

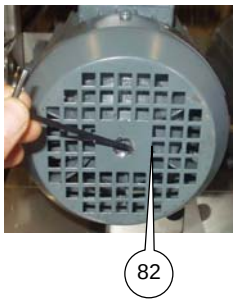
The tray set position should be checked with a hatch tray.
When the vacuum head is at the tray set position, the tip (77) of the suction cup should be approximately 5 mm above the surface (78) of the hatch tray.

TIP!
For the explanation how to change the tray set position, see the user manual.

SPEED LEFT RIGHT

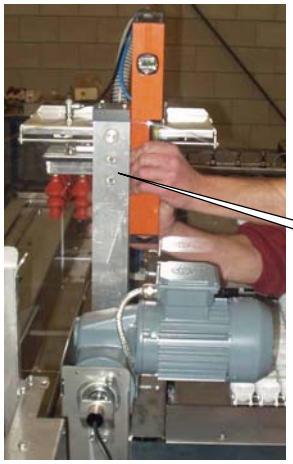
The air cylinders have speed restrictors (79). With these restrictors the speed of the ingoing and outgoing stroke of the cylinder is adjustable. Normally the speed is adjusted with the outgoing air.
When adjusting these speeds it should not influence the cycle time of the complete system but the movement of the cylinder should transport eggs in a smooth and gentle way.

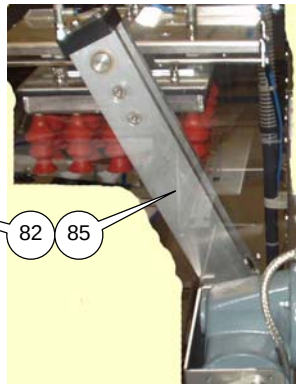




VACUUM HEAD ZERO POSITION

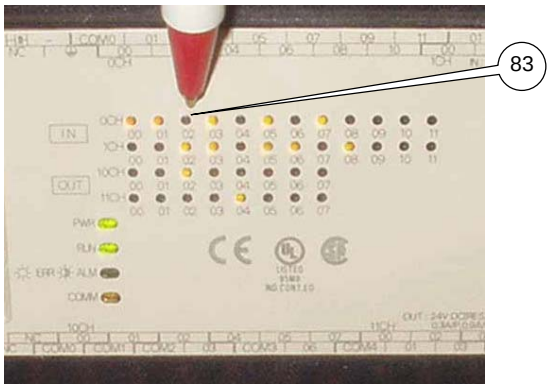
After a replacement of encoder, flexible coupling or motor, it is necessary to reset the zero position of the vacuum head.
Follow below procedure for zero position adjustment:





ATTENTION!
Never change the position of the vacuum head by hand when the systems power supply is off. This results in a lost encoder position and may damage the system when started.

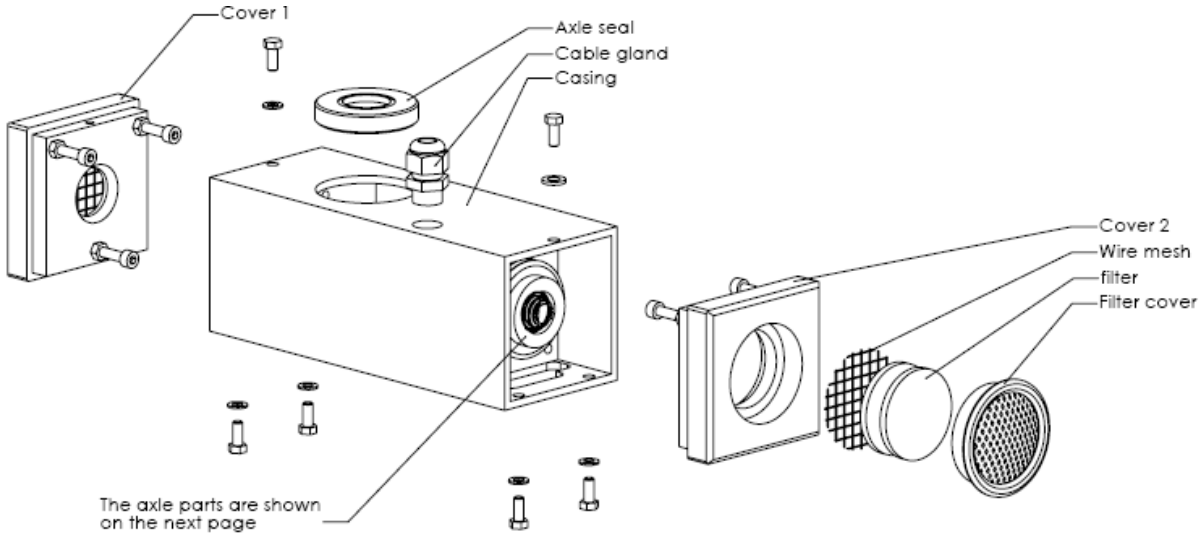
80. Press the emergency button. Keep the main power to the system ON.
81. Loosen up the setscrew of the flexible coupling to release the connection between the motor and the encoder.
82. Turn the fan on the rear of the motor until the beam is in the vertical position.
83. Turn the shaft of the encoder until input 02 on Channel 0 is OFF. This is the 0 position of the vacuum head.
84. Now mechanically connect the encoder to the motor again by tightening the setscrew of the flexible coupling.
85. Move the beam half way towards the denester by rotating the fan of the motor.
86. Switch the system OFF and switch it ON 10 seconds later.
87. Reset the system by pressing the start button.
88. Now the vacuum head first moves slowly towards its 0 position and after this it moves towards its waiting position above the cup conveyor.



VACUUM VALVE PARTS REPLACEMENT

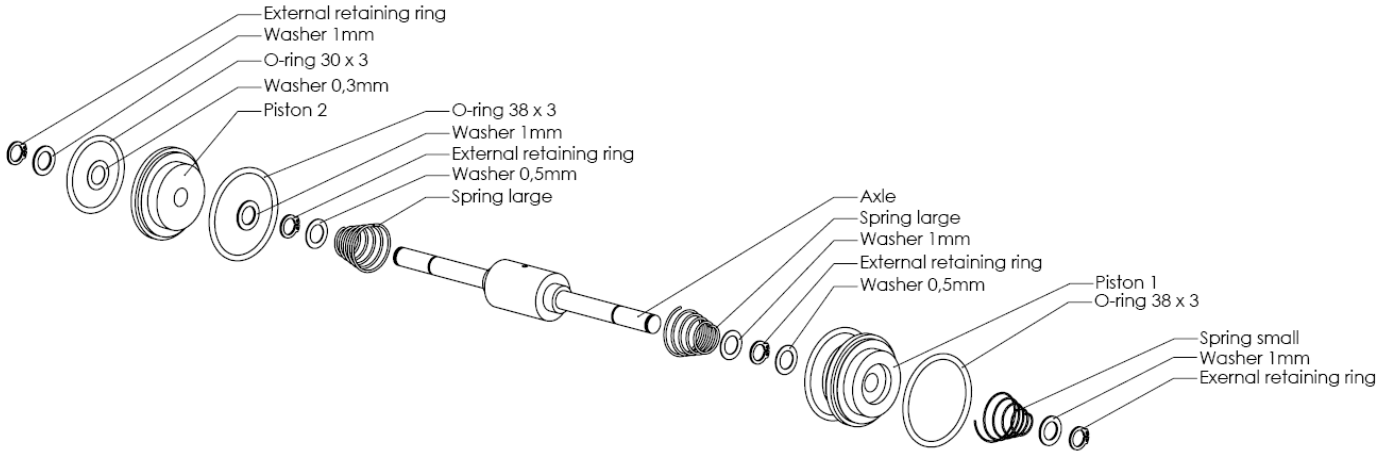
A replacement set for the vacuum valve consists of the following parts:

4x Filter
2x Spring large
1x Spring small
4x External retaining ring
4x Washer 1mm
2x Washer 0.5 mm
1x Washer 0.3 mm
3x O-ring 38x3
1x O-ring 30x3



Follow below procedure to replace the filter:

1. Remove the 3 bolts that fasten the cover to the casing.
2. Carefully place a screwdriver in between the cover and the filter cover to remove the filter cover from the cover.
3. Remove the wire mesh from the filter cover and replace the 2 filters.
4. Place the parts back in the reverse order of removal. Carefully tap the filter cover back into the filter with a rubber hammer.



Follow below procedure to replace the o-rings and the spring on the cover 1 side:

5. Remove Cover 1 by loosening the 3 bolts that fastens the cover to the casing.
6. Remove the retaining ring.
7. Remove the 1 mm washer
8. Remove the 0.3 mm washer.
9. Remove the piston and replace the 30x3 O-ring and the 38x3 O-ring.
10. Remove the 1 mm washer.
11. Remove the retaining ring.
12. Remove the 0.5 mm washer.
13. Replace the large spring.
14. Place the parts back in the reverse order of removal.

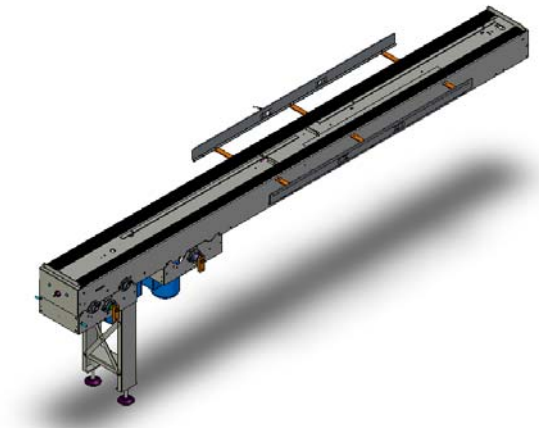
	**ATTENTION!** Make sure to place all washers back on the correct positions. Placing the washers back on the wrong positions results in malfunctioning of the vacuum valve and thus in malfunctioning of eggs pick up.
	**TIP!** Since it is difficult to identify the several washers we advise to use the washers that are in the valve instead of the new washers from the replacement set. Place the washers in the order of removal on a table and place them back in the exact same order.

Follow below procedure to replace the o-rings and the springs on the cover 2 side:

15. Remove Cover 2 by loosening the 3 bolts that fastens the cover to the casing.
16. Remove the retaining ring.
17. Remove the 1 mm washer
18. Remove the small spring. Replace it with the new small spring.
19. Remove the piston and replace the 2 38x3 O-rings.
20. Remove the 0.5 mm washer.
21. Remove the retaining ring.
22. Remove the 1 mm washer.
23. Replace the large spring.
24. Place the parts back in the reverse order of removal.

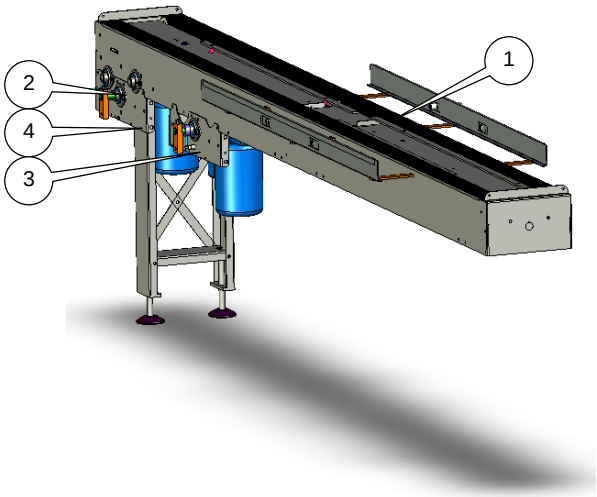
	**ATTENTION!** Make sure to place all washers back on the correct positions. Placing the washers back on the wrong positions results in malfunctioning of the vacuum valve and thus in malfunctioning of eggs pick up.
	**TIP!** Since it is difficult to identify the several washers we advise to use the washers that are in the valve instead of the new washers from the replacement set. Place the washers in the order of removal on a table and place them back in the exact same order.

5. OUTPUT CONVEYOR

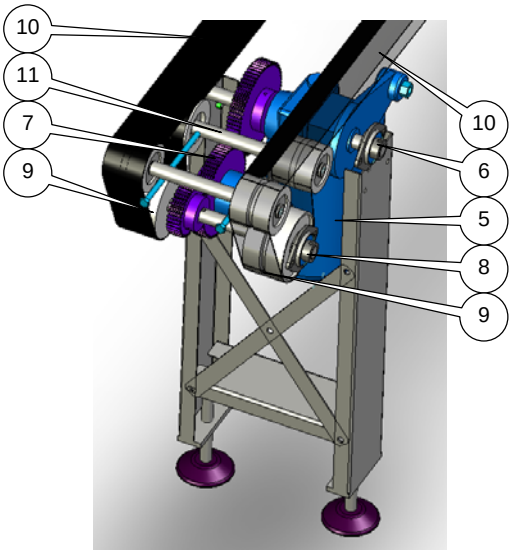


DESCRIPTION OUTPUT CONVEYOR

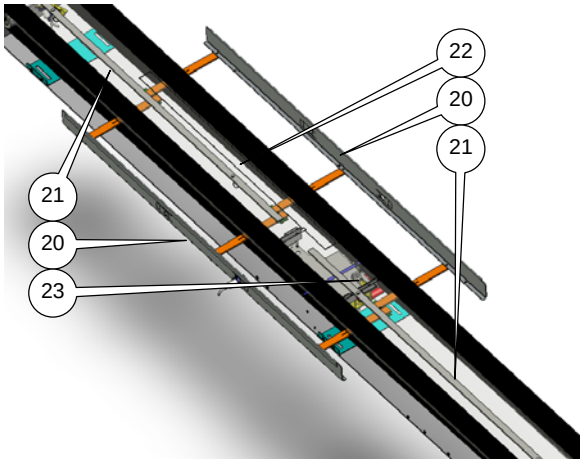
Use:
The output conveyor transports empty trays from the denesters towards the tray set position underneath the vacuum head, and full trays towards the position where they are manually removed.

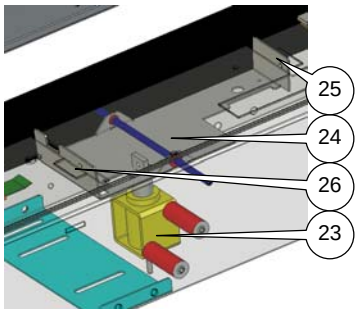


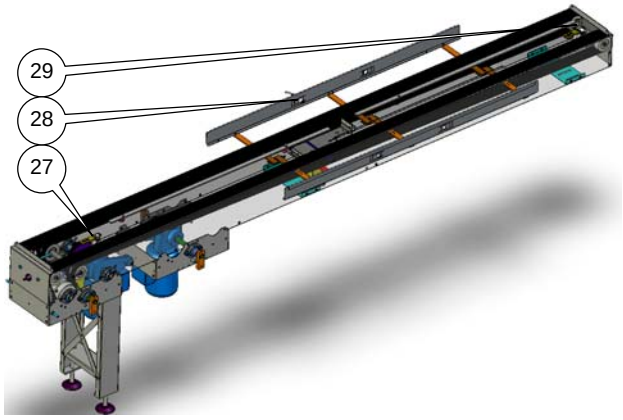
Construction:
The output conveyor consists of a tray transport system (1), a drive mechanism (2) for the transport belts and the 30-cell tray denester and a drive mechanism (3) for the hatch tray denester.
It is possible to attach the 30-cell tray denester and/or the hatch tray denester.
The air supply (4) is also attached to the output conveyor.



Construction drive mechanism:
An AC motor (5) situated underneath the output conveyor is directly mounted on a shaft (6). Via a gearwheel construction (7) this shaft drives the crankshaft for the tray denester and the drive shaft (8) for the transport belts. On this drive shaft 2 pulleys (9) are positioned to drive both transport belts (10). The transport belts tension is adjustable with the tensioning shaft (11).



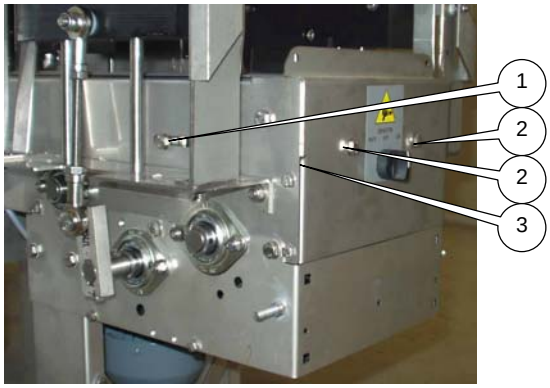




Construction transport system:
The transport system consists of 2 transport belts for the transportation of the trays. There are 2 side guides (20) to guide the hatch trays and 2 center guides (21) to guide the 30 cell trays. The center guides can be lowered manually when hatch trays are used.
For the hatch trays there are 3 air cylinder controlled stoppers (22).
For the 30 cell trays a solenoid (23) controls a lever (24). When the solenoid is activated it puts the lever in the position where it stops the tray at the tray set position (25). When the solenoid is deactivated it puts the lever in the other position where it stops the next tray (26).
A sensor (27) underneath the 30-cell tray denester detects a full transport conveyor and stops the denester.
A sensor (28) at the tray set position detects a tray at the tray set position.
A sensor (29) at the end of the transport system detects a hatch tray at the end of the output conveyor.

	**CAUTION!** Do not enter objects or body parts into the output conveyor when it is running production.
	**ATTENTION!** Do not enter objects or body parts into the output conveyor when it is running production.

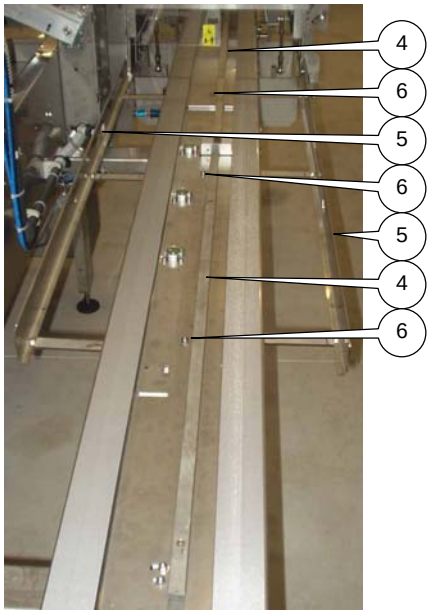
Safety:
The output conveyor is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the output conveyor and do not touch it when it is running production.



ADJUSTMENTS OUTPUT CONVEYOR

TRANSPORT BELT TENSION

Adjust the tension of the transport belts in such a way that they won't slip on the drive rollers during start up and during normal production with full load.
Loosen up the tensioning roller lock bolts (1) on both sides of the output conveyor. Turn the tensioning bolts (2) Clock Wise for more belt tension and Counter Clock Wise for less belt tension.
Adjust on both sides of the conveyor the same! The distance between the lock bolt and the end of the conveyor (3) must be the same on both sides of the conveyor.



ATTENTION!
A too high belt tension may result in a damaged belt or wear on rollers and bearings.

30 CELL TRAY GUIDE

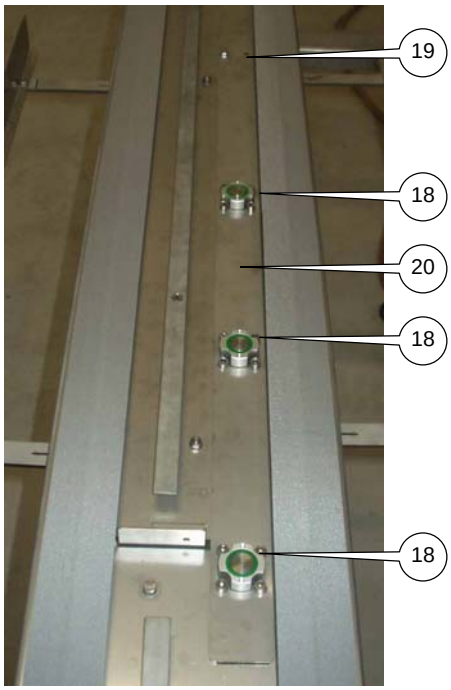
Pull the 30 cell tray guides (4) up and slide them towards the end of the conveyor for guiding the 30 cell trays.
When hatch trays are used, slide the guides towards the denesters until they move down.

HATCH TRAY GUIDE

To adjust the guides (5) for the hatch trays, loosen up the 3 nuts (6) and reposition the guides. Tighten up the 3 nuts afterwards.

HATCH TRAY DETECTION

The sensor (7) at the end of the outfeed conveyor detecting the hatch trays should also be able to detect an empty hatch tray. Position an empty hatch tray at the end of the conveyor and make sure the sensor is ON. Adjust by loosening up the 2 lock nuts (8) and repositioning the sensor. Tighten up the lock nuts afterwards.
For sensitivity adjustment of the sensor see adjustment of photo switches in this chapter.



HATCH TRAY STOP POSITION

TIP!
Make sure the pick up position of the vacuum head is correct before adjusting the hatch tray stop position.

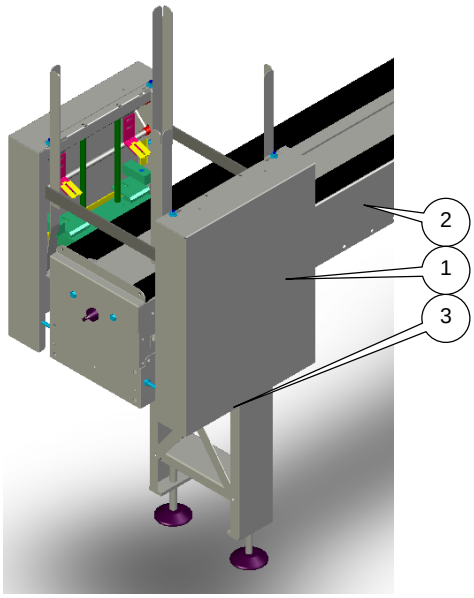
Follow below steps to check the stop position of the hatch tray:

10. Place a hatch tray against the first stopper.
11. Set the tray selection button to II
12. Set the clear button to I
13. Start the system by pressing the start button twice.
14. Place an egg onto the packer and wait until the egg is transported towards the end of the cup conveyor.
15. As soon as the vacuum head picks up the egg and starts moving towards tray, press the stop button.
16. The vacuum head stops at its tray set position.

Check the tray position. The first row of suction cups must fit into the first row of the hatch tray (17).

When adjustment of the hatch tray stop position is needed, loosen up the 12 bolts (18) that hold the stopper cylinders and the 2 bolts at the end of the strip (19).
Reposition the strip with all the stopper cylinders (20); check the tray set position again until it is correct. Tighten up the 14 bolts afterwards.

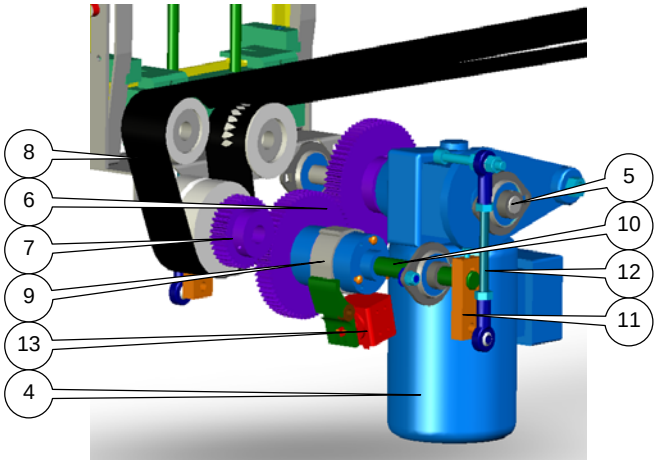
6. 30 CELL TRAY DENESTER



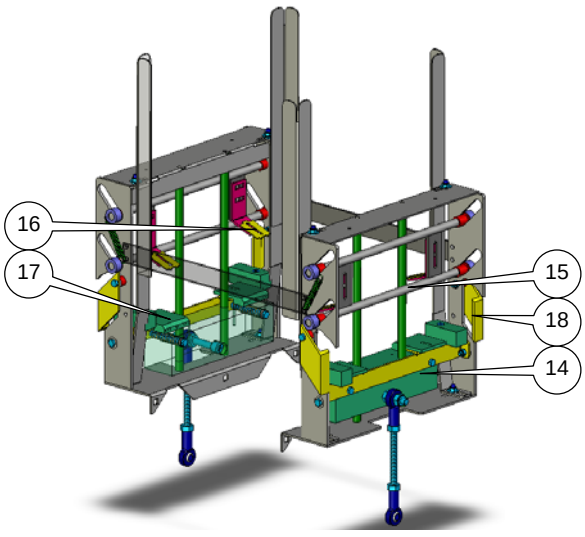
DESCRIPTION 30 CELL TRAY DENESTER

Use:
The tray denester separates a single tray from a stack of trays and drops this tray on the output conveyor.

Construction:
The tray denester (1) is placed on top of the output conveyor (2). The drive mechanism (3) of the denester is positioned underneath the output conveyor.
Sensors in the output conveyor detect the trays and control the start and stop moments of the denester.



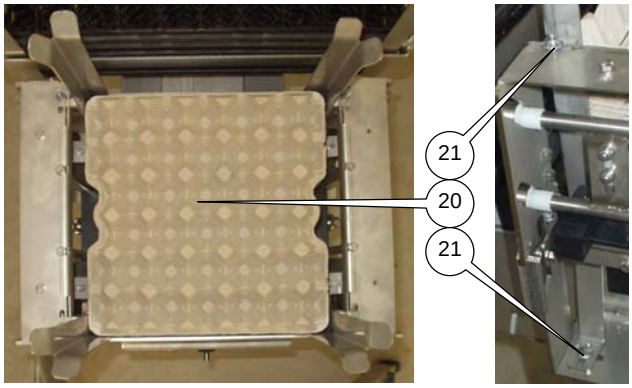
Construction drive mechanism:
An AC motor (4) situated underneath the outfeed conveyor is directly mounted on a shaft (5). Via a gearwheel construction (6) this shaft drives a drive shaft (7) for the transport belts (8) and a clutch (9) that controls the crankshaft (10) of the tray denester. On both sides of the crankshaft cranks (11) are connected to tie rods (12).
A solenoid (13) controls the start and stop of the crankshaft and thus the movement of the tie rods.



Construction tray denester:
The tie rods are connected to the denester blocks (14).
During the upward movement the denester block raises the spring-loaded levers (15) with upper grippers (16). Because of the slots in which the levers are positioned, they move outwards. At the same time the spring loaded lower grippers (17) are moved from the tilting plate (18) into a slot towards the stack of trays grabbing the lowest tray.
During the downward movement, the levers with upper grippers move towards the stack of trays again. The grippers enter the stack directly above the lowest tray.
The lower grippers pull the lowest tray downwards. During this movement they move outwards to release the tray on the transport belt.

	**CAUTION!** Do not enter objects or body parts into the denester when it is running production.
	**ATTENTION!** Do not enter objects or body parts into the denester when it is running production.

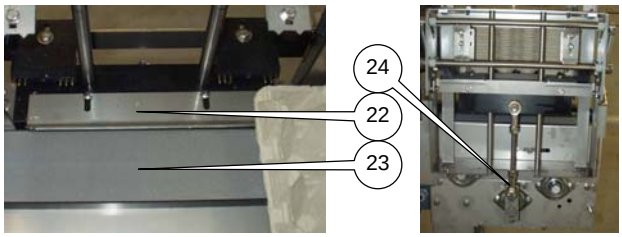
Safety:
The denester is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the denester and do not touch it when it is running production.



ADJUSTMENTS 30 CELL TRAY DENESTER

BUNKER ADJUSTMENT

Make sure there is a free space for the stack of trays (20) inside the bunker. Adjust this space with the positions of the sides (21) of the bunker. Adjust the 4 sides in such a way that the trays are centred on the output conveyor.

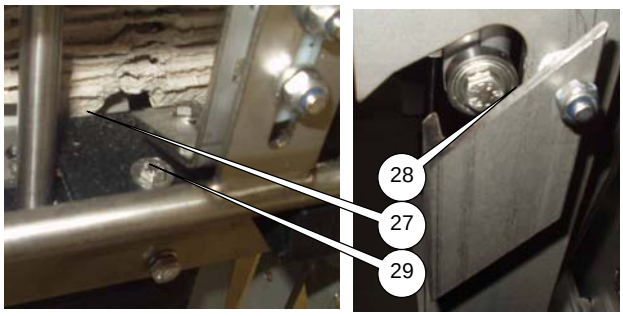


TRAY GUIDE

Both tray guides (22) should be as far as possible towards the transport belt (23) of the output conveyor without touching this belt.

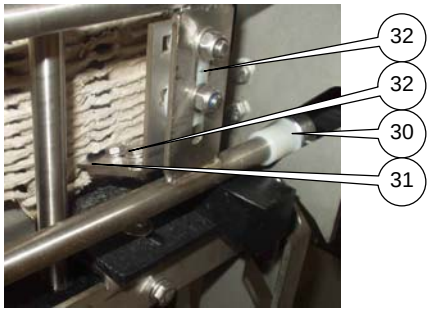
LOWER GRIPPERS

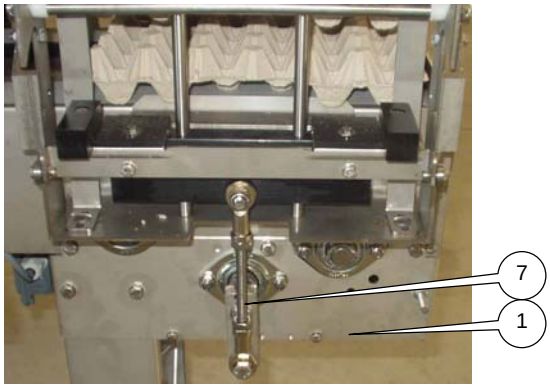
Adjust the position of the lower grippers when the denester block is in the top position (24). Stop the system by pressing the stop button (25). “Machine stopped by stop button” is visible on the display. Activate the INCH button (26) shortly to move the denester block to its top position.
When the pins of all grippers (27) are inside the tray, there must be a space of 1 mm between the bearing of the denester block and the slot in the frame (28).
Adjust by changing the position of the lower grippers (29). Make sure that on all 4 positions the bearings do not touch the frame.

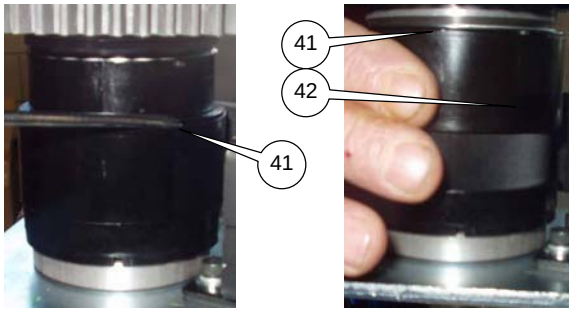


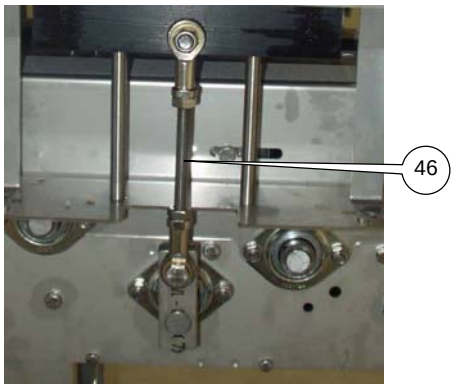
TOP GRIPPERS

Adjust the position of the top gripper when the denester is beyond the top position and the top grippers are completely at their bottom position (30).
The position of the top grippers should be just above the lowest tray (31).
It is possible to adjust this gripper in all 3 directions (32). Make sure all 4 grippers are adjusted correctly.









DENESTER STOP POSITION

The stop position of the tray denester is factory set. When the tray denester stops, the lower grippers are at the lowest position and the crank position is completely vertical.
After a replacement of parts of the drive mechanism, adjustment of this stop position may be needed.
Follow below procedure for stop position adjustment:

40. Press the emergency button and remove the cover around the clutch.
41. Lift the circlip with a screwdriver and move it as far as possible towards the gearwheel.
42. Move the cam ring as far as possible towards the gearwheel until it is able to rotate.
43. Rotate the cam ring and place it back.

ATTENTION!
Do not remove the bottom ring. This ring is factory set. Removing this ring damages the clutch.

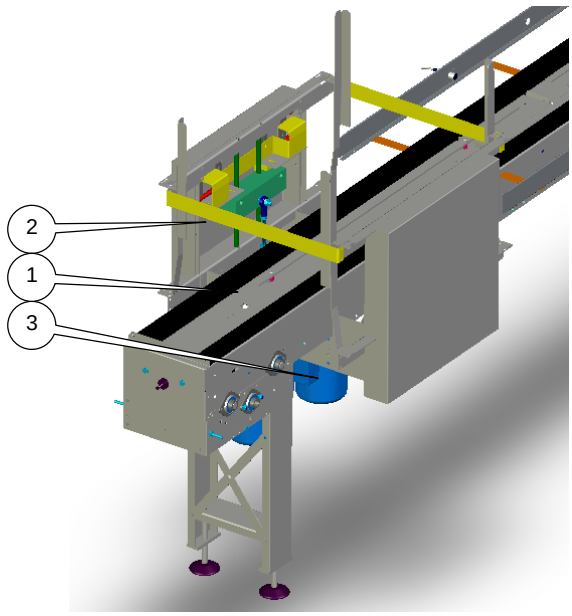
TIP!
A small movement of the cam ring results in a big change in the stop position.

44. Pull the emergency button and start the system by pressing the start button twice.
45. As soon as the outfeed conveyor is running, set the selector switch to INCH. The denester makes one complete stroke and stops in the bottom position.
46. Check the lowest position. At this position the tie rod and the crank should be vertical.
47. Repeat 40 to 46 until the tie rod and crank are in the vertical position.
48. Place back the circlip to lock the cam ring on the clutch. Place back the cover

TIE ROD ADJUSTMENT

The tie rods (46) are factory set. We advise you to consult Prinzen before adjusting this tie rod!

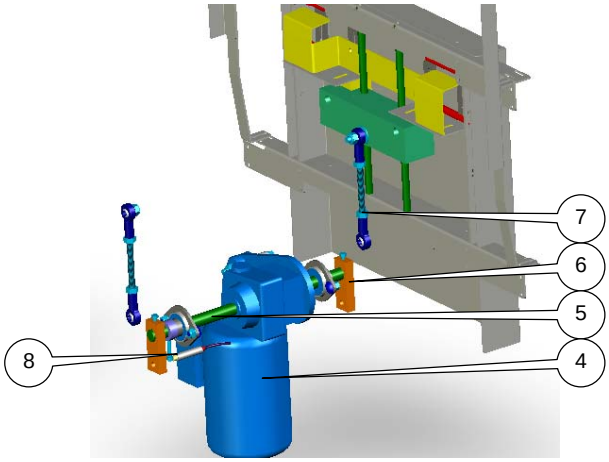
7. HATCH TRAY DENESTER



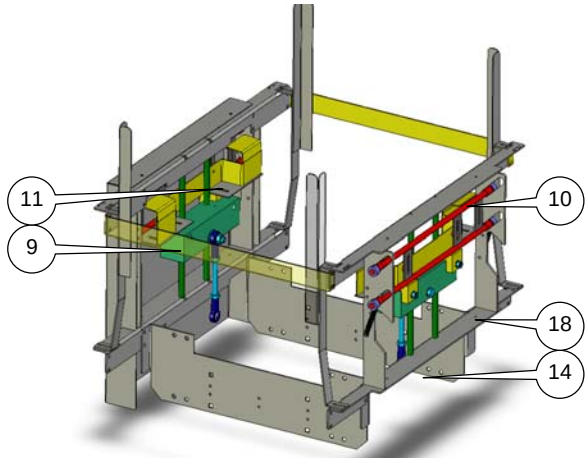
DESCRIPTION HATCH TRAY DENESTER

Use:
The hatch tray denester separates a single hatch tray from a stack of trays and drops this tray on the output conveyor.

Construction:
This hatch tray denester (1) is placed on top of the output conveyor (2). The drive mechanism (3) of the denester is positioned underneath the outfeed conveyor.
Sensors in the output conveyor detect the trays and control the start and stop moments of the denester.



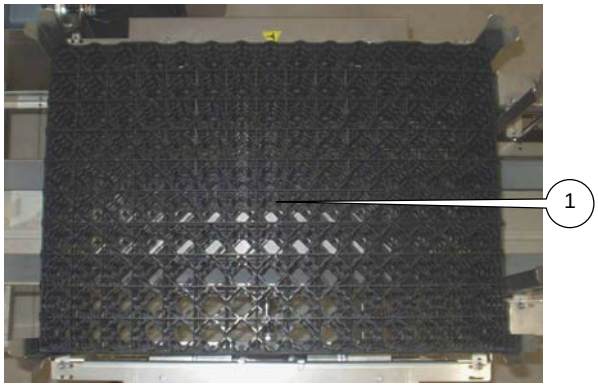
Construction drive mechanism:
An AC motor (4) situated underneath the output conveyor is directly mounted on a crankshaft (5). On both sides of the crankshaft cranks (6) are connected to tie rods (7).
A sensor (8) determines the stop position of the crankshaft and thus the stop position of the tie rods.



Construction tray denester:
The tie rods are connected to the denester blocks (9).
During the upward movement the denester block raises the spring-loaded levers (10) with grippers (11). Because of the slots in which the levers are positioned, they move outwards.
The stack of trays drops on the denester blocks.
During the downward movement, the levers with grippers move towards the stack of trays again. The grippers enter the stack directly above the lowest tray.
The lowest tray moves further down towards the transport belt on the denester blocks.

	**CAUTION!** Do not enter objects or body parts into the denester when it is running production.
	**ATTENTION!** Do not enter objects or body parts into the denester when it is running production.

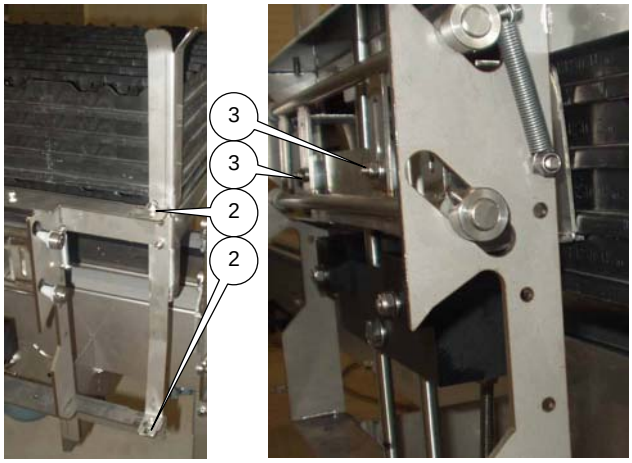
Safety:
The denester is not completely secured with protective covers. Therefore be cautious with loosely hanging clothes and long hair, do not come too close to the denester and do not touch it when it is running production.



ADJUSTMENTS HATCH TRAY DENESTER

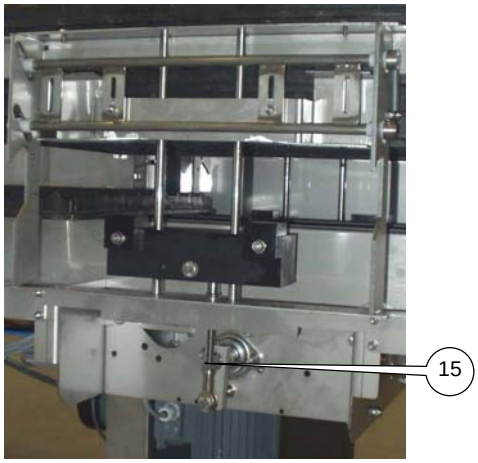
BUNKER ADJUSTMENT

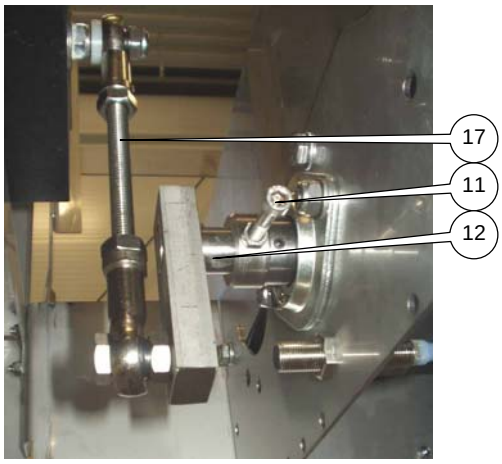
Make sure there is a free space for the stack of hatch trays (1) inside the bunker. Adjust this space with the positions of the sides (2) of the bunker. Adjust the 4 sides in such a way that the trays are centred on the output conveyor.

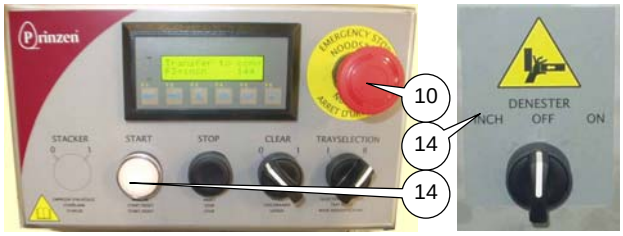


TOP GRIPPER

The top gripper must be set in the lowest position (3).
The top grippers should hold the 2nd tray when the first tray is lowered towards the outfeed conveyor. The last tray in the bunker always remains in the bunker.
Make sure both grippers are adjusted correctly.







DENESTER STOP POSITION

The stop position of the tray denester is determined by the stop sensor. When the tray denester stops, the denester blocks are at the lowest position and the crank position is completely vertical.
Follow below procedure for stop position adjustment:

10. Press the emergency button.
11. Loosen up the detection bolt.
12. Change the position of the detection bolt on the crankshaft. Tighten up the detection bolt.
13. Pull the emergency button and start the system by pressing the start button twice.
14. As soon as the outfeed conveyor is running, set the selector switch to INCH. The denester makes one complete stroke and stops in the bottom position.
15. Check the lowest position. At this position the tie rod and the crank should be vertical.
16. Repeat 10 to 15 until the tie rod and crank are in the vertical position.

TIE ROD ADJUSTMENT

The tie rods (17) are factory set. We advise you to consult Prinzen before adjusting this tie rod!

8. TROUBLE SHOOTING GUIDE

TIP!
For all electrical failures, first check the circuit breakers, motor protection switches and fuses!

Failure	Conditions	Possible causes	Possible solutions
Machine not able to reset	White light on start-/reset button is OFF	1 Emergency stop button pushed or defective	Unlock or replace
		2 Fuse F18 defective	Replace
		3 Contactor Q0 defective	Replace
		4 No power to machine	Check external power supply
		5 Main circuit breaker off	Solve problem and switch on
		6 Power supply TR1 is defective	Replace
Egg collecting belts are not activated	Panel egg collecting belt is ON	1 Pressure switch is ON	Mechanically activated?
		2 Pressure control micro switch is defective	Replace
		3 Cable defective	Replace
		4 Relay K10 defective	Replace
Egg collecting belts doesn't stop		1 Pressure control micro switch is defective	Replace
Egg collecting belts start- and stop delay is not correct		1 Change timing on the operator display	See user manual
Eggs are not all point down		1 Rollers are not turning	Clean rubber support guides
		2 Rollers are dirty	Clean rollers
		3 Rollers / Cups offset	Adjust
		4 Stars offset	Adjust
		5 Flaps not on right position	Adjust position
Egg cups come loose		1 Cup shafts are dirty	Clean shafts and lubricate them with silicone spray
Eggs not lifted by vacuum head		1 Vacuum hose defective	Replace
		2 Vacuum filter dirty	Replace
		3 Vacuum head dirty	Clean
		4 Vacuum head not centred	Adjust
		5 Vacuum head pick-up position too high	Adjust
		6 Vacuum valve defective	Replace seals and springs

Failure	Conditions	Possible causes	Possible solutions
30 cell tray denester doesn't start	Machine is running	1 selector switch on conveyor is OFF	Switch ON
		2 Photocell "start denester" defective or incorrect adjusted	Replace or adjust
		3 Clutch is not activated	Relay K9 defective
30 cell trays stuck on one side		1 Upper grippers incorrect adjusted	Adjust
		2 Lower grippers do not move inwards freely	Correct or lubricate
		3 Broken denester springs	Replace
Denester runs jerkily		1 dirty	Clean and lubricate
Hatch tray denester doesn't start	Machine is running	1 selector switch on conveyor is OFF	Switch ON
		2 Motor circuit breaker is OFF	Solve problem and switch K7 ON
30 cell tray stopper does not flip over	Machine is running	1 Photocell "tray present" incorrect adjusted or defective	Adjust or replace
		2 Hinge dirty	Clean
		3 Solenoid dirty	Clean
		4 Relay for solenoid defective	Replace relay K8
		5 Fuse F19 defective	Replace
		6 Power supply TR2 defective	Replace
Air cylinders do not move	Machine is running	1 Photocell "tray present" incorrect adjusted or defective	Adjust or replace
		2 Air supply incorrect	Check air pressure
		3 Air valve defective	Switch valve manually or replace
		4 Relay for air valve defective	Replace relay K13-K17
		5 Fuse F19 defective	Replace
		6 Power supply TR2 defective	Replace